22-5078-001A
February 12, 2021

Mr. David Sawicki
Executive Director
Office of State Traffic Administration
Department of Transportation
2800 Berlin Turnpike
P. O. Box 317546
Newington, CT 06131-7546

Re: **OSTA Administrative Decision Request**
Meriden Retail Health
460 Lewis Avenue
Meriden, Connecticut

Dear Mr. Sawicki:

On behalf of MedCraft Healthcare Real Estate, LLC, enclosed for your review is the "Major Traffic Generator (MTG) Administrative Decision (AD) Request/Checklist" and supporting materials for the proposed redevelopment of existing vacant space (formerly Macy's) at 460 Lewis Avenue (the Site). The property is included within the Meriden Mall in the City of Meriden.

The 460 Lewis Avenue site is currently certified as part of the "Meriden Square Mall Expansion" OSTA AD No. 13-C (OSTA No. 079-9710-01), which allows for 909,932 square feet of retail space and 4,111 parking spaces based upon the approved "Site Plan – Westfield Shoppingtown-Meriden Square", Sheet DP-0, dated April 7, 1998. Facade improvements to the west wing of the mall were approved by the City of Meriden Planning Commission on April 26, 2004. The City-approved site plan includes 881,761 square feet of retail space and 4,065 parking spaces, both of which are lower than the OSTA approved plan. The OSTA and City approval documents are enclosed for reference.

The redevelopment proposes to convert 179,795 square feet of existing retail space that was formerly occupied by Macy's to medical office use that will be named Meriden Retail Health. The Site and Meriden Mall are currently served by three driveways: a signalized intersection at Lewis Avenue to the east, a signalized intersection at Route 71 (Chamberlain Highway) to the west, and a stop-controlled driveway at Kensington Avenue to the north. Existing site access will be maintained with the redevelopment. The redevelopment will include some site circulation and parking changes within the Site. The changes will result in the loss of 33 on-site parking spaces. Following the redevelopment, the 460 Lewis Avenue site will include 54 handicapped accessible spaces. A site development plan showing the proposed layout of the 460 Lewis Avenue is provided for reference (L202) along with an OSTA Overall Site Plan (OSP-001). Following the proposed redevelopment, the Meriden Mall Certified Area will include 881,761 square feet of development (701,966 square feet retail; 179,795 square feet medical) and 4,032 parking spaces including 89 handicapped accessible spaces.

Because the proposed Meriden Retail Health redevelopment is located within an existing MTG certified area, OSTA has regulatory authority over the redevelopment. Considering the expected increase in site-generated trips during the weekday morning and afternoon peak hours are not expected to significantly impact traffic operations in the study area and the expected reduction in site-generated trips from approved levels during the Saturday midday peak hour, the proposed redevelopment falls within the provisions for an Administrative Decision (AD) approval as detailed in the attached documentation and checklist.

Site Plan & Site Location Plan (OSTA AD Checklist Item I & II)

The OSTA Overall Site Plan (OSP-001; dated 02/12/2021) and Site Location Plan (Figure 1) prepared in accordance with the checklist standards are enclosed.

Traffic Information (OSTA AD Checklist Item III)

As detailed in the sections below and documentation attached, the proposed Meriden Retail Health redevelopment is expected to increase site-generated traffic by more than 100 trips during the weekday morning peak hour and by less than 50 trips during the weekday afternoon peak hour, while reducing Saturday midday peak hour trips from approved levels. As such, the traffic information and analyses required by the AD checklist are provided for the weekday morning and afternoon peak hours. The CTDOT Bureau of Policy and Planning has reviewed and approved the traffic volumes provided and analyzed within this submission.

Existing Traffic (OSTA AD Checklist Item III A.)

The weekday morning peak hour was analyzed as part of the capacity analysis based upon the AD checklist standards. Existing weekday morning traffic volumes were collected along the roadways surrounding the Site and Meriden Mall in November 2020 and adjusted based on 2018/ 2019 published data to account for decreases in traffic volumes due to the effects of the COVID-19 pandemic. These adjustments were made in consultation with the CTDOT Bureau of Policy and Planning. The 2020 Existing traffic volumes for the weekday morning peak hour are provided in Figure 2.

Background Traffic (OSTA AD Checklist Item III B.)

The development of background traffic volumes was based on an estimated annual growth rate as well as an estimate of trips that could be generated by filling the existing vacant space within the Meriden Mall. An annual growth rate of 0.6% provided by CTDOT was applied to the existing traffic volumes to project them from 2020 to the proposed full occupancy year of the development, 2024. Trips that would be generated by the approximately 411,742 square feet of existing, vacant retail space within the Meriden Mall were also added to the background traffic volumes (See Trip Generation Narrative Section of this letter for more detail on these volumes). Based on a review of pending and approved developments in the area within both the City of Meriden and OSTA records, there are no known developments that will add significant traffic to the study area. The 2024 Background traffic volumes for the weekday morning peak hour are presented in Figure 3.

Trip Distribution Methodology (OSTA AD Checklist Item III C.2.)

The trip distribution for the proposed redevelopment traffic was based on existing traffic patterns in the study area and the fact that a majority of the site traffic will be focused on the major travel routes. The following distribution is expected:

- 30% to/ from I-691 to the east
- 25% to/ from I-691 to the west
- 13% to/ from Kensington Avenue to the east
- 9% to/ from Route 71 (Chamberlain Highway) to the north
- 6% to/ from Coldspring Avenue to the west
- 5% to/ from Route 71 (Chamberlain Highway) to the south
- 5% to/ from Midstate North Driveway to the east
- 5% to/ from Lewis Avenue to the south
- 2% to/ from Bailey Avenue to the north

The trip distribution by intersection turning movement is shown in Figure 4.

Trip Generation Narrative (OSTA AD Checklist Item III D.1.)

The expected site-generated traffic volumes for the approved, vacant retail use and proposed medical office use were calculated using rates published in the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition, 2017. Table 1 provides a summary of the expected site-generated traffic changes with the conversion from retail to medical office. Based on the site-generated traffic estimates, the proposed medical office is expected to generate 356 additional site-generated trips during the morning peak hour, 40 additional trips during the weekday afternoon peak hour, and 131 less trips during the Saturday midday peak hour when compared to the previously approved retail use. Detailed calculations of the site-generated traffic for the existing approved retail use and proposed medical use are provided in Tables 2 and 3, respectively. Site-generated traffic estimates for the existing vacant retail space subject to redevelopment is provided in Table 4.

The proposed, additional site-generated traffic for the morning peak hour was distributed to the study area based upon the trip distribution and is shown in Figure 5. These site-generated trips were then added to the 2024 Background traffic volumes to prepare the 2024 Combined traffic volumes shown in Figure 6.

Capacity & Storage/Queue Analysis (OSTA AD Checklist Item III E. & F.)

Capacity and queue analyses were performed for the study area intersections during the morning peak hour under 2020 Existing Conditions, 2024 Background Conditions, and 2024 Combined Conditions using Trafficware Synchro Studio 10 – Traffic Analysis Software. Signal timings for the Existing Conditions were those included on the traffic control signal plans of record while phase splits were optimized for Background and Combined conditions due to the amount of traffic being added for the existing vacant space within the Meriden Mall complex. The analysis results are summarized in Tables 5 and 6 for Level of Service (LOS) and queues, respectively. Capacity analysis worksheets with full inputs, settings, and results are enclosed.

All intersections maintain the same overall level of service under the Combined Condition when compared to the Background Condition, with only slight increases in delay. All intersections operate at an acceptable overall LOS C or better. Vehicular queues remain within available storage at all study area intersections under Combined Conditions, with only minor increases in queue length when compared to queues experienced under Background Conditions.

Collision Analysis Narrative (OSTA AD Checklist Item III G.)

The collision history for the study area intersections was analyzed for the most recent three-year period (2018-2020) utilizing the data provided in the Connecticut Crash Data Repository. Based on the review, there are no notable existing collision trends. It is not anticipated that the site-generated traffic will negatively affect traffic safety in the study area. The collision history is summarized for the study area in Table 7 with Tables 8 through 16 providing collision summaries for each study area intersection.

Drainage Information (OSTA AD Checklist Item IV)

Drainage information is not expected to be required based upon the attached AD Drainage checklist and associated documents. The proposed grading project mimics existing drainage patterns, and the proposed conditions result in a net reduction of impervious area compared to existing conditions. Therefore, this project results in no increase, from existing to proposed conditions, in stormwater peak flow or volume leaving the site.

The existing site coverage primarily consists of the building, paved parking and drive aisles, concrete walkways, concrete loading dock, retaining walls, and landscaping. The site generally slopes from the west down to Sodom Brook along the east edge of the site. An

existing stormwater system collects runoff from the building roof and paved parking areas, and discharges to Sodom Brook.

When requesting any known history of flooding or drainage problems, the DOT District had indicated that there was a history of flooding at Lewis Avenue. However, the area of flooding was later clarified to be due to an obstruction, and this subject site does not contribute to the portion of Lewis Ave where the flooding occurred. The City of Meriden Engineering Department indicated that they have since cleared the obstruction at the location of the previous flooding, and have not witnessed flooding since. The City is replacing a culvert along Sodom Brook, upstream of the subject site, which they indicated will resolve the only other know flooding concern in this area. The subject site does not contribute to the drainage area of the culvert being replaced. Refer to attached email correspondences with DOT District 1 and the City of Meriden Engineering Department.

Local Approvals (OSTA AD Checklist Item V)

The redevelopment has been submitted for City of Meriden approval concurrently with this submission. The City approval is expected by April 2021 and a copy will be provided upon receipt.

Local Traffic Authority Concurrence (OSTA AD Checklist Item VI)

The City of Meriden Local Traffic Authority (LTA) contact, Roberto Rosado, Chief of Police, City of Meriden has been copied on this submission. Written concurrence by the LTA, will be requested and provided upon receipt.

We trust that the information provided herein will be sufficient for your review and approval of an Administrative Decision for the proposed Meriden Retail Health redevelopment. Should you have any questions or require additional information, please contact us.

Sincerely,

TIGHE & BOND, INC.

Craig D. Yannes, PE, PTOE, RSP1
Project Manager

John W. Block, PE, L.S.
Senior Vice President

Copy: Roberto Rosado, Chief of Police, City of Meriden (LTA Contact)
Chris Lambrecht, MedCraft Healthcare Real Estate, LLC
John Knuff & Amy Souchuns, HSS&K, LLC

Enclosures: Major Traffic Generator Administrative Decision Request/Checklist
OSTA Certificate 13-C Approval (Dated 06.16.1998)
City of Meriden Planning Commission Approval (Dated 04.26.2004)
Meriden Retail Health Site Layout Plan (L202, Dated 02.12.2021)
OSTA Overall Site Plan (OSP-001, Dated 02.12.2021)
Site Location Plan (Figure 1)
Traffic Volume Figures (Figures 2 thru 6)
Traffic Generation Summary Tables (Table 1 thru 4)
Traffic Operation Results Summary Tables (Tables 5 and 6)
Collision History Summary (Tables 7 thru 16)
Capacity Analysis Worksheets

STATE OF CONNECTICUT
Office of the State Traffic Administration
Department of Transportation
2800 Berlin Turnpike
P.O. Box 317546 Newington, CT 06131-7546
Phone: (860) 594-3020 Fax: (860) 594-2377

MAJOR TRAFFIC GENERATOR
ADMINISTRATIVE DECISION REQUEST/CHECKLIST
(To be used where no state highway mitigation/safety measures are proposed)

Date: February 12, 2021

(PLEASE FILL OUT COMPLETELY)

DEVELOPMENT INFORMATION

Name of Facility: Meriden Retail Health (within Meriden Mall)

Location (complete street address; if none, provide map/block/lot information): 460 Lewis Avenue

Town and Zip Code: Meriden, CT 06451

Proposed Gross Floor Area (GSF) and Land Use of Expansion: N/A

Proposed GSF and Land Use of Land Use Change (i.e. xx retail to xx office, etc.): 179,795 SF Retail to 179,795 SF Medical Office

Total Gross Floor Area Categorized By Land Use: 701,966 SF Retail & 179,795 SF Medical Office (881,761 SF Total)

Existing Parking Spaces: 4,111 Parking Spaces Added by Expansion/Land Use Change: -79

Total Parking Spaces: 4,032 Number Designated Handicapped: 89

Land Owner's Corporate Name*: MedCraft Healthcare Real Estate, LLC

Land Owner Contact for Written Correspondence: Chris Lambrecht, Senior Vice President, Construction & Development

Land Owner's Address: 3601 Minnesota Drive, Suite 850

Town, State, & Zip Code: Minneapolis, MN 55435

Tel: 952-829-3489

Land Owner's E-Mail: clambrecht@medcraft.com

Full Time Permanent Jobs Created: N/A

CONSULTANT INFORMATION

Company Name: Tighe & Bond

Contact Person: Craig D. Yannes, PE, PTOE, RSP1

Address: 1000 Bridgeport Avenue, Suite 320

Town, State, and Zip Code: Shelton, CT 06484

Phone: 203-712-1114

FAX Number: N/A

E-Mail: cdyannes@tighebond.com

*** As noted in the municipal land records. If there is more than one land owner, a separate form shall be provided for each.**

FOR DOT USE ONLY:	OSTA (x3) ☐	Drainage ☐	Traffic Engineering ☐	Planning Emailed ☐
10/19/2016				Files Copied to ProjectWise ☐

ADMINISTRATIVE DECISION SUBMISSION GUIDELINES

- All of the information listed below shall be submitted for the review of new major traffic generators that do not substantially affect the state highway system (i.e. mitigation or safety measures regarding state highways are not necessary to accommodate traffic generated the new major traffic generator).
- The information is also required for the review of proposed expansions or land use changes to existing major traffic generators that predate the Office of the State Traffic Administration (OSTA) certification process and those that were previously certified that do not substantially affect the state highway system.

If changes to the state highway system are being proposed to mitigate the impact of the traffic associated with a new major traffic generator or a proposed expansion or land use change to an existing major traffic generator then the development will be considered to have a substantial impact on the state highway system DO NOT USE THIS CHECKLIST. Formal OSTA action will be required and a major traffic generator certificate application and the information on its associated checklist must be submitted.

This completed checklist shall accompany the administrative decision request. Copies of any information submitted but not considered pertinent to the application will be discarded.

Five (5) paper copies and one (1) DVD of the information deemed appropriate to the development shall be submitted to the OSTA, with an additional set of the information forwarded by the developer to the Local Traffic Authority of each involved municipality. The DVD shall contain all required information in digital (i.e. not scanned) .pdf format and the original data files for the traffic and drainage analysis.

The request will not be considered complete until all of the applicable information is received.

SUBMITTED	N/A	
☑	☐	I. Site Plan:

An overall site plan showing the entire OSTA certifiable area, including the administrative decision review area uniquely identified as such, shall be provided, sized to fit on a single 2' x 3' plan sheet, that identifies all buildings (including gross floor area and land use for each), parking spaces, property lines, internal connections to abutting properties, names of all property owners (including the abutting property owners), and the complete street address(es) for all properties within the certifiable area. If street address information is not available, show map / block / lot information. An aerial photograph may be used.

The entire OSTA certifiable area shall include all parcels whose traffic must use the review development's access drive(s) and shall be distinguishable by a distinct peripheral property line with the call out "OSTA Certifiable Area". Refer to the OSTA web site to view sample overall site plans.

The overall site plan must show the Intersection Sight Distances (ISD) that will be provided and maintained for any existing and proposed drives onto a state highway that were not part of a previous OSTA certificate. The ISD may be shown directly on the drives or listed in a tabular format.

	☑	If any state highway driveway ISD encroach on property not owned by the AD developer, OSTA certification will be required and the development proposal will not qualify for an AD. The N/A box must be checked here to verify there is no such encroachment.

SUBMITTED	N/A	
☑	☐	II. Site Location Plan - Showing State highways and major intersecting Town roads in the vicinity of the site.
		III. Traffic Information - Contact the Trip Analysis Section at (860) 594-2025 with any questions regarding trip generation or distribution. The amount of traffic information required will be based on the expected number of new trips associated with the development/expansion/land use change.
☐	☑	If 50 or fewer new trips, submit only information noted in Item D-1 below.
☐	☑	If more than 50 but less than100 new trips, submit all information noted under Item C below as well as the information noted in Item D-1 and D-2 for all site driveways.
☑	☐	If approximately 100 or more new trips, or 50 or more new trips to an individual intersection left turn movement, then submit all information noted under Items A through G below for site access driveways and any other intersections where approximately 100 or more new trips are being added, or 50 or more new trips to an individual intersection left turn movement.
		A. Existing Traffic Volumes
☑	☐	1. Flow diagrams showing the appropriate existing peak hour traffic volumes for the proposed development, inclusive of all site drives. Diagrams must indicate date of submission and date of existing traffic.
☑	☐	2. Identify the hours of the day, day of week and how the peak hours were determined in relation to the proposed development.
		The morning/afternoon weekday and weekend midday peak hours are the most typical time periods analyzed. Depending on the type of proposed development, all or some combination of these hours will be required. In some cases, the peak hour of the generator may be needed (e.g. movie theatre – evenings, school – dismissal peak).
		Approach volumes must be totaled and checked for accuracy before submission. Traffic volumes between intersections shall be balanced or an explanation for the break in traffic flow provided.
		Areas experiencing a significant recreational peak shall be counted during the peak season. When this is not possible, traffic volumes may be seasonally adjusted to reflect the heaviest peak hour volume.
		B. Background Traffic
☑	☐	1. Identify other developments, including those previously approved by the OSTA, or pending, but not yet operational, and include their volume in the background traffic.
☑	☐	2. Identify any annual growth or seasonal adjustment factors used and justify their selection.

SUBMITTED	N/A	
☑	☐	3. Provide flow diagrams showing the appropriate background peak hour traffic volumes for the proposed development as determined in the existing condition. Diagrams must indicate date of submission and date of background traffic. Background traffic flow diagrams must be consistent with existing traffic diagrams.

Approach volumes must be totaled and checked for accuracy before submission. Traffic volumes between intersections shall be balanced or an explanation for the break in traffic flow provided.

If there are overlapping intersections with a recent, previously approved MTG, the combined traffic figures from the prior MTG shall be used as base traffic for the new project.

C. Trip Distribution

☑	☐	1. Provide flow diagrams showing the percent distribution of generated traffic, by direction, for each major road leading to the area and at all access points. Diagrams must include date of submission. Flow diagrams shall be consistent with the peak hours analyzed in the existing and background traffic conditions.
☑	☐	2. Provide a description of the methodology used to develop the trip distribution. Any differences in the approach and departure distribution shall be explained.

D. Site Generated Traffic / Combined Traffic Volumes

☑		1. Submit a narrative regarding logic used for the trip generation.
☑	☐	2. Provide flow diagrams for the applicable peak hour(s) for the generated traffic volumes.
☑	☐	3. Provide flow diagrams for the applicable peak hour(s) for the combined traffic volumes (the sum of the background and generated traffic volumes). Diagrams must include date of submission and date of combined traffic.

In most cases, trip generation data derived from the latest ITE Trip Generation Report will be acceptable. Approved ConnDOT studies are currently utilized to derive trip generation data for, super food stores and Dunkin' Donuts locations. Other studies will be taken into consideration, but will be subject to approval.

Out parcels contained within retail developments shall utilize the most specific land use code available via ITE or other acceptable study data. For restaurants, indicate whether it is a fast- food or sit-down style service, and if there is a drive-up window proposed.

Trip generation for the Christmas Season, as defined by ITE, is not currently required. Trip generation shall reflect a successful day, not abnormally high-peak periods such as holiday weekends.

For retail developments, Friday afternoon and Saturday midday peak are required study periods. For apartments, condominiums, hotels and motels, the number of 1-, 2- and 3-bedroom units, and the square foot area of each type of unit shall be noted. For hotels and motels, list the number of rooms.

SUBMITTED	N/A	
		E. Capacity Analysis, including all input data, supportive computation sheets and/or charts shall be submitted. The format for the submitted analysis shall be in accordance with Transportation Research Board's Highway Capacity Manual (HCM 2000). Inquiries about the format of the analysis may be directed to the Division of Traffic Engineering (860) 594-2710. Analysis should be provided for intersections, interchanges, or expressways for the following time periods and traffic conditions:
☑	☐	1. Background Traffic and Combined Traffic – Analyze same peak hours as shown in the traffic flow diagrams.
☐	☑	2. Morning and afternoon peak hour of the generator, if different than the morning and afternoon peak hour of the adjacent highway.
		F. Storage / Queue Analysis - The submission of a storage and/or queue analysis supporting the background and combined traffic capacity analysis provided under Sections III-E.1 and III-E.2 is usually necessary under the following conditions:
☑	☐	1. When exclusive turning lanes exist, there is potential through lane blockage of turn lane or visa verse.
☑	☐	2. When there is a potential for vehicular backups affecting operation of nearby intersections, major drives and/or nearby rail crossings.
☐	☑	3. When there is limited stopping sight distance on a signalized approach.
☑	☐	4. Off-ramp approaches to signalized intersections.
☐	☑	5. Other conditions may be identified during the review by the engineer which would require a storage/queue analysis.
☑	☐	G. Supply information on the latest available three years of accident experience. A narrative for all existing site drives and off-site impacted locations is required. A table of data or collision diagram may be used to demonstrate the crash history.

IV. Drainage Requirements

For developments not previously certified, that do not have frontage on a state highway or state railroad, no drainage information will be required.

For those that do have frontage on a state highway, the amount of drainage information required will be based on an assessment of the drainage impact to the state highway system associated with the development/expansion/land use change. See attached form " OSTA Administrative Decision Request – Drainage " to determine if this project will qualify for an exemption of drainage information or if further drainage information as shown below will be required.

☐	☑	A. Drainage Report - A well-documented Drainage Report will facilitate the drainage review process. Failure to provide the Drainage Report will delay the review and approval process until the document is received. Inquiries regarding submissions may be directed to the Division of Design Services - Hydraulics and Drainage, (860)594-3238.

SUBMITTED	N/A	
☐	☑	1. Locate the MTG site on an 8.5" x 11" excerpt of a USGS topographic quadrangle map (Scale 1:24,000). Indicate the quadrangle name and number on this plan.
☐	☑	2. Locate the MTG site on the relevant portion of the FEMA Flood Insurance Rate Map (FIRM) and Floodway Map. Indicate the panel number, scale, and effective date of the map(s).
☐	☑	3. A detailed narrative specifically relating the proposed drainage design to existing State drainage facilities, (roadways, railroads, etc.), describing any potential impacts consequent to the proposed construction is required. The narrative must contain a definitive conclusion on whether there is any drainage impact to State facilities. The narrative should also include a discussion of existing and proposed drainage patterns. It is desirable to maintain the existing drainage patterns. Diversions of storm runoff to State drainage facilities are generally not acceptable unless appropriate drainage rights are obtained from all affected downstream owners.
☐	☑	4. Contour plans depicting tributary drainage areas both within and, where applicable, beyond the MTG boundaries are required. In some cases, the entire MTG site may drain away from the State transportation facility. In this instance, the report narrative identified in Item No. 3 above should so indicate. This will negate the requirement for drainage design computations; however, contour plans are still needed to verify the drainage patterns.
☐	☑	5. Submit drainage layout and details of existing and proposed storm sewer as well as hydraulic structure designs and their relationships to any adjacent State drainage facilities. All proposed outlets connecting or discharging to State maintained facilities must be clearly indicated. Further, existing State maintained drainage facilities that are located adjacent to development property and/or are potentially affected by the proposed construction must be shown on the plans. Copies of "as-built" plans showing the location of these State systems are acceptable providing that the appropriate pipe sizes, type of pipe, invert elevations, drainage structure types, and top of frame elevations are obtained for hydraulic computations, where required.
☐	☑	6. Existing and proposed drainage rights and easements of the MTG site and contiguous State properties must be identified on the plans and described in the drainage report narrative. If there are no existing drainage rights or easements recorded for the MTG or contiguous State property, the drainage report narrative must indicate same.
		7. For development sites that: • Connect or discharge to existing State drainage facilities – a., b., and c. below are required. • Receive discharge from existing State drainage facilities – a. and b. below are required. • Propose pavement widening on State roadways – a., b., and c. below are required.

SUBMITTED	N/A	
☐	☑	a. Supporting computations and electronic data files for gutter flow, storm sewer, hydraulic grade line (water surface profile) and outlet protection, as appropriate for the development.
☐	☑	b. An analysis, including computations and electronic data files for gutter flow, storm sewer, hydraulic grade line (water surface profile) and outlet protection, as appropriate for the State facilities, shall be performed to its terminus or to a distinct hydraulic control to verify its adequacy. This analysis must consider the relative times-to-peak of the site and State maintained drainage systems and is required even if a reduction in peak flows from the site itself is anticipated.
☐	☑	c. A visual inspection of the existing State drainage facilities (pipes and structures) shall be performed to verify its condition and documented. The condition of existing ditches and outlets of the State drainage systems shall also be field inspected to verify their stability, need for cleaning, and to ensure no erosion or sediment problems exist.
☐	☑	8. Design plans and computations (including electronic data files) for any proposed storm water detention (above or below grade), retention or infiltration facilities. These plans must indicate sizes, dimensions, elevations and construction materials for the facility and its proposed outlet. At a minimum, design requirements must meet the standards set forth in the Department's Drainage Manual. Where failure of these facilities could impact adjoining State systems or structures, an Inspection/Maintenance plan must be prepared by the developer. This plan, together with any formal agreements or related documents, are normally filed in the town land records.
☐	☑	9. Indicate the location and type of any features included in the proposed drainage design to treat storm runoff and thereby enhance storm water quality. Treatment shall be accomplished prior to discharging to State drainage systems.
☐	☑	10. For sites which contain regulated floodplain or floodway areas as defined by the relevant Flood Insurance Study documents, within their boundaries, the applicant must depict the limits of same on the development site plan(s). Additionally, any proposed encroachments within these regulated areas must be evaluated, at least in a qualitative sense, for potential impacts upon upstream or downstream State facilities. Ultimately, a detailed hydraulic evaluation of floodplain or floodway encroachments may be required.

V. Planning and / or Zoning Approval

☐	☑	Provide a copy of local Planning and or Zoning approval and date received, or documentation that it is not required. If the Planning and or Zoning approval does not specify the size of the development, land use and parking which has been approved, or does not reference a site plan with the same information, then written confirmation from the Planning and or Zoning Office will also be required specifically indicating what has been approved.

SUBMITTED	N/A	
☑	☐	If approval is required, the town must be in receipt of an appropriate application prior to the submission of the AD request to the OSTA. If the approval has not been granted, a statement indicating the anticipated schedule for obtaining Planning and or Zoning approval must be supplied. Upon approval, a copy thereof must be submitted.

VI. Local Traffic Authority Concurrence

☑	Written confirmation from the Local Traffic Authority indicating concurrence with the assessment of no substantial impact to the state highway system contingent on the Department's agreement with said assessment must be provided.

OFFICE OF THE STATE TRAFFIC ADMINISTRATION (OSTA) - ADMINISTRATIVE DECISION REQUEST - DRAINAGE

Name of Facility	Town	State Route(s)
Meriden Retail Health (within Meriden Mall)	Meriden	I-691 & S.R. 71

Location (complete street address; if none, provide map/block/lot information)

460 Lewis Avenue

Stormwater Runoff (at least one of the following must be checked to qualify):

- ☑ The proposed project will not increase impervious area at the site.
- ☐ Stormwater runoff from the site does not drain nor is directed to State property or State owned/maintained drainage facilities.

Diversions (the following must be checked to qualify):

- ☑ Proposed drainage patterns on the site are maintained as closely as possible to the existing site conditions. No diversion of stormwater or stream flow is proposed that will potentially affect State or private property.

State Drainage System Modifications (the following must be checked to qualify):

- ☑ There are no new connections or modifications to State owned/maintained drainage systems.
- ☑ There are no modifications to the development drainage system that a State drainage connects or discharges to.

Drainage Rights/Easements (Check all that apply. Response will be used to determine if new/additional ROW is required):

- ☑ State drainage facilities are not located on the subject site.
- ☐ Runoff from any adjacent State highway or railroad facility does not discharge onto the subject site.
- ☑ Existing and /or proposed site drainage does not connect to a State owned/maintained drainage facility.
- ☐ Existing site drainage connects to a State owned/ maintained drainage facility. A record of the connection
  A record of the connection - ☐ exists - ☐ does not exist at the DOT District office.
- ☑ Land records were searched and no State drainage rights/easements were found for the subject site.
- ☐ A State " drainage right of way " or " easement " is recorded on the land records for the property.

Description of State drainage right of way or easement (type & location)

- ☑ The proposed project will not affect an existing State drainage right of way or easement on the subject property.

Flood History (the following must be checked to qualify):

- ☑ The subject site does not have a history of flooding or known drainage problems. The applicant has consulted with the municipality and the DOT District Drainage office regarding any flood history or known drainage problems at the site. A copy of the meeting/telephone report is attached.

Other Approvals

Has the drainage design and stormwater management for the project been approved at the local level? ☐ Yes ☑ No

Professional Engineer Certification

I have conducted a site investigation and reviewed the proposed project plans relative to the information required for this document. Based on my review and reasonable investigation, including my inquiry of those individuals responsible for obtaining the in formation, I hereby certify that the information provided on this document is complete and true.

Name	PE Number	
Kevin McCutchan, PE	27217	
	2/10/2021	
Signature	Date	Affix P.E. Stamp Here

Kevin McCutchan

Subject: FW: OSTA Drainage Checklist - Meriden Retail Health

From: Brian Ennis <bennis@meridenct.gov>
Sent: Monday, February 8, 2021 10:37 AM
To: Kevin McCutchan <KMcCutchan@TigheBond.com>
Subject: Re: OSTA Drainage Checklist - Meriden Retail Health

[Caution - External Sender]

Kevin: That is correct.

Good luck.

Brian Ennis, P.E.

City Engineer

City of Meriden

(203) 630-4020

From: Kevin McCutchan <KMcCutchan@TigheBond.com>
Sent: Monday, February 8, 2021 10:36 AM
To: Brian Ennis <bennis@meridenct.gov>
Subject: RE: OSTA Drainage Checklist - Meriden Retail Health

Hi Brian,
Thank you for the call. Below is a summary of our conversation.
The work being performed by the City to replace the culvert at the Kensington Ave & Lewis Ave intersection is currently under construction, and will resolve the flooding at that culvert which is upstream of the subject property.
The DOT had indicated past flooding at the I-691 overpass at Lewis Ave, which you indicated the City had cleaned out a structure there and have not seen any flooding there since.
You had no other history or concerns with flooding or drainage problems at this site.

Thanks again,
Kevin

Kevin McCutchan, PE, LEED AP| Senior Engineer
Tighe & Bond | 213 Court Street, Suite 1100 | Middletown, CT 06457| T. 860.852.5233 | C. 860.919.4110
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Tighe&Bond

From: Kevin McCutchan
Sent: Monday, February 8, 2021 9:39 AM
To: Brian Ennis <bennis@meridenct.gov>
Subject: OSTA Drainage Checklist - Meriden Retail Health

Hi Brian,
As part of the OSTA process we are preparing for a project at 460 Lewis Avenue (former Macy's in the Westfield's Meriden Mall), we are inquiring about any known history of flooding or drainage problems at this site.
From previous discussions, we believe there was flooding at the intersection of Kensington Ave and Lewis Ave, which is upstream of this project's property, and that the City was replacing the Kensington Ave bridge over Sodom Brook.
Can you confirm whether there is any known history of flooding or drainage problems at this site?
Please note that the subject property is not the entire mall site, but is primarily the southern portion of the mall as highlighted in yellow below (also attached).

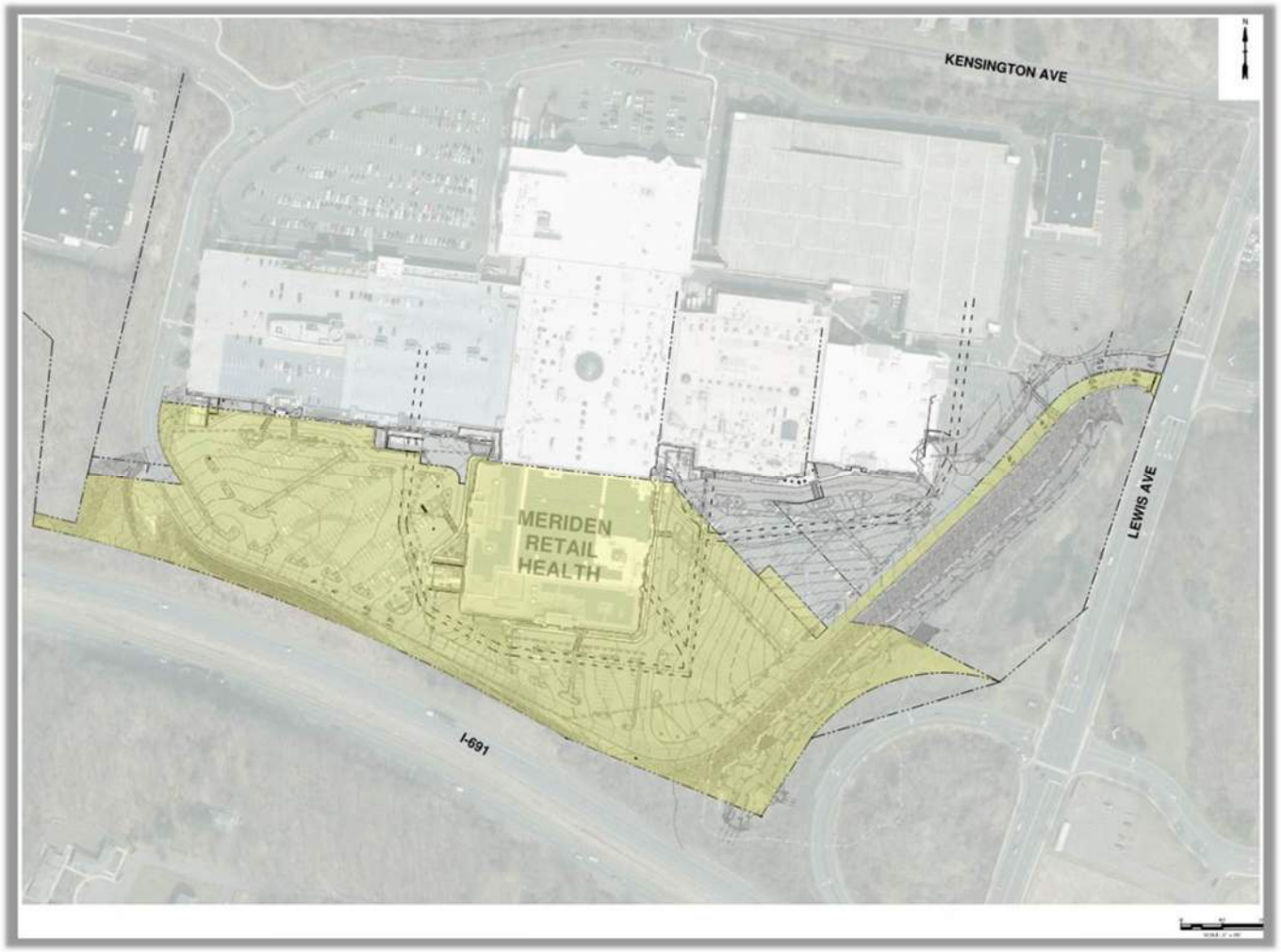
If preferred, please feel free to call me at 860-919-4110 if you have any questions, comments or need any additional information.

Item from OSTA checklist:

Flood History (the following must be checked to qualify):

☐ The subject site does not have a history of flooding or known drainage problems. The applicant has consulted with the municipality and the DOT District Drainage office regarding any flood history or known drainage problems at the site. A copy of the meeting/telephone report is attached.

Property limits in yellow:



Thank you & stay safe!
Kevin

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Kevin McCutchan

Subject: FW: OSTA Drainage Checklist - Meriden Retail Health

From: Burns, Monique G. <Monique.Burns@ct.gov>
Sent: Thursday, February 4, 2021 2:36 PM
To: Kevin McCutchan <KMcCutchan@TigheBond.com>
Cc: Ward, Donald L <Donald.Ward@ct.gov>
Subject: Re: OSTA Drainage Checklist - Meriden Retail Health

Hi Kevin,

Thank you for the additional information regarding storm water leaving your site. As with all the requests I get for flood history for OSTA reviews, I either know of the flooding in an area or look it up in a D1 data base I have.

Which means (given time constraints) I don't perform a huge review for history of flooding. I just report what I have.

The flooding I noted (which occurred once in 2007 due to an obstruction (may still exist) inside an outfall pipe from Lewis Ave to the west), has not occurred since. When your project comes down to Permits for review, I will make efforts at that time to confirm that the storm system in Lewis Ave. that contributes to the State's storm system at I-691 is open and flowing.

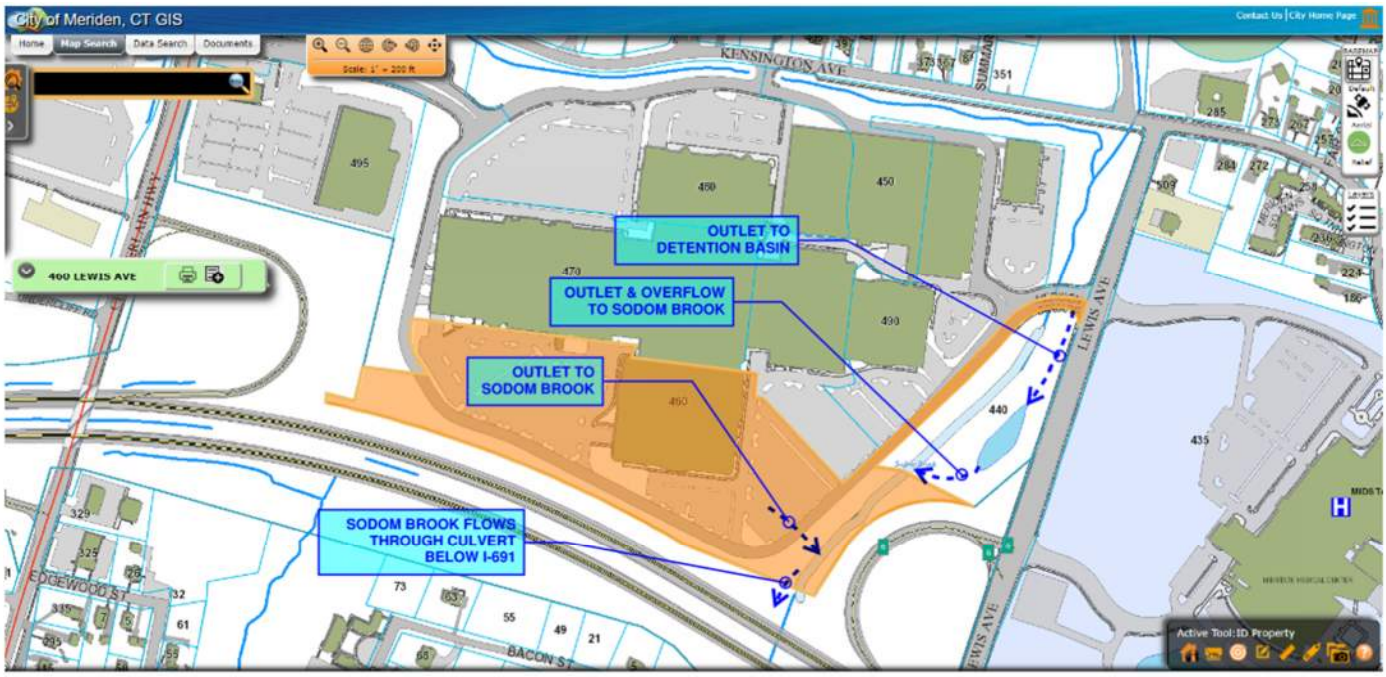
Regards,

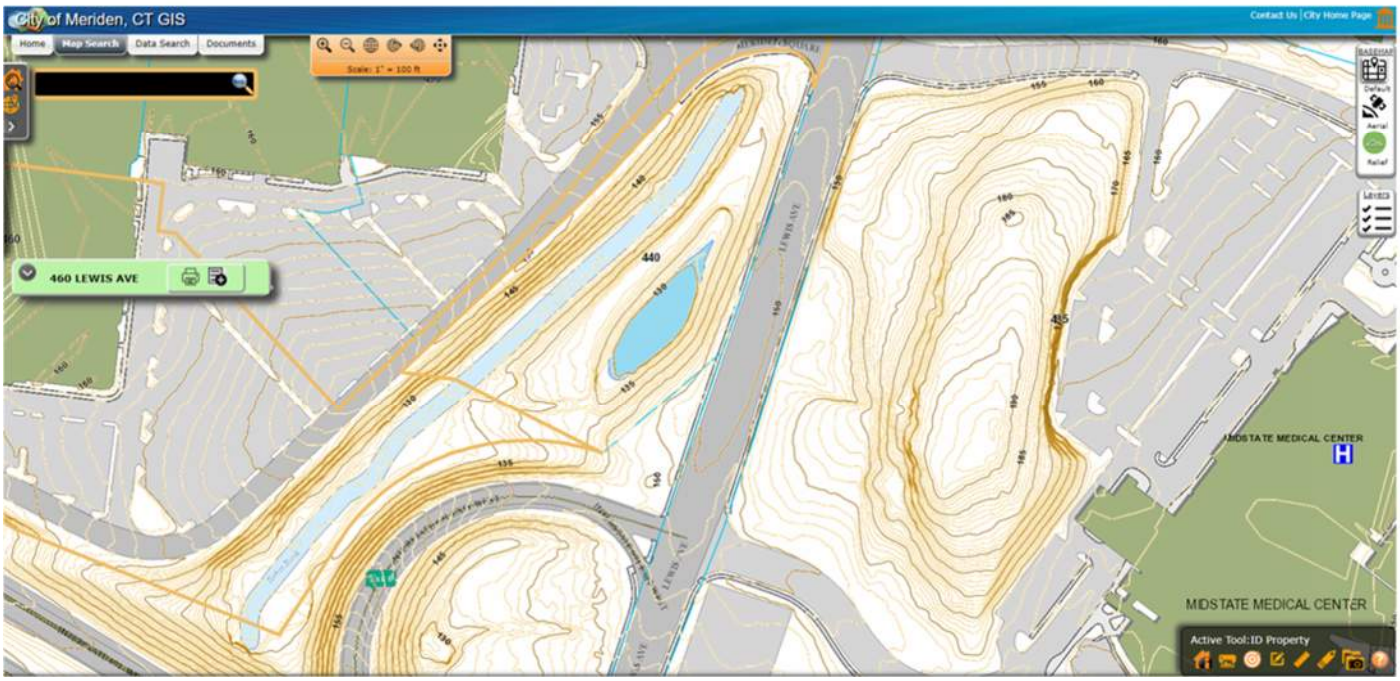
Monique G. Burns, District One Drainage Engineer
Connecticut Department of Transportation
1107 Cromwell Avenue
Rocky Hill, CT 06067
860-258-4504 (office)
860-478-3156 (cell)

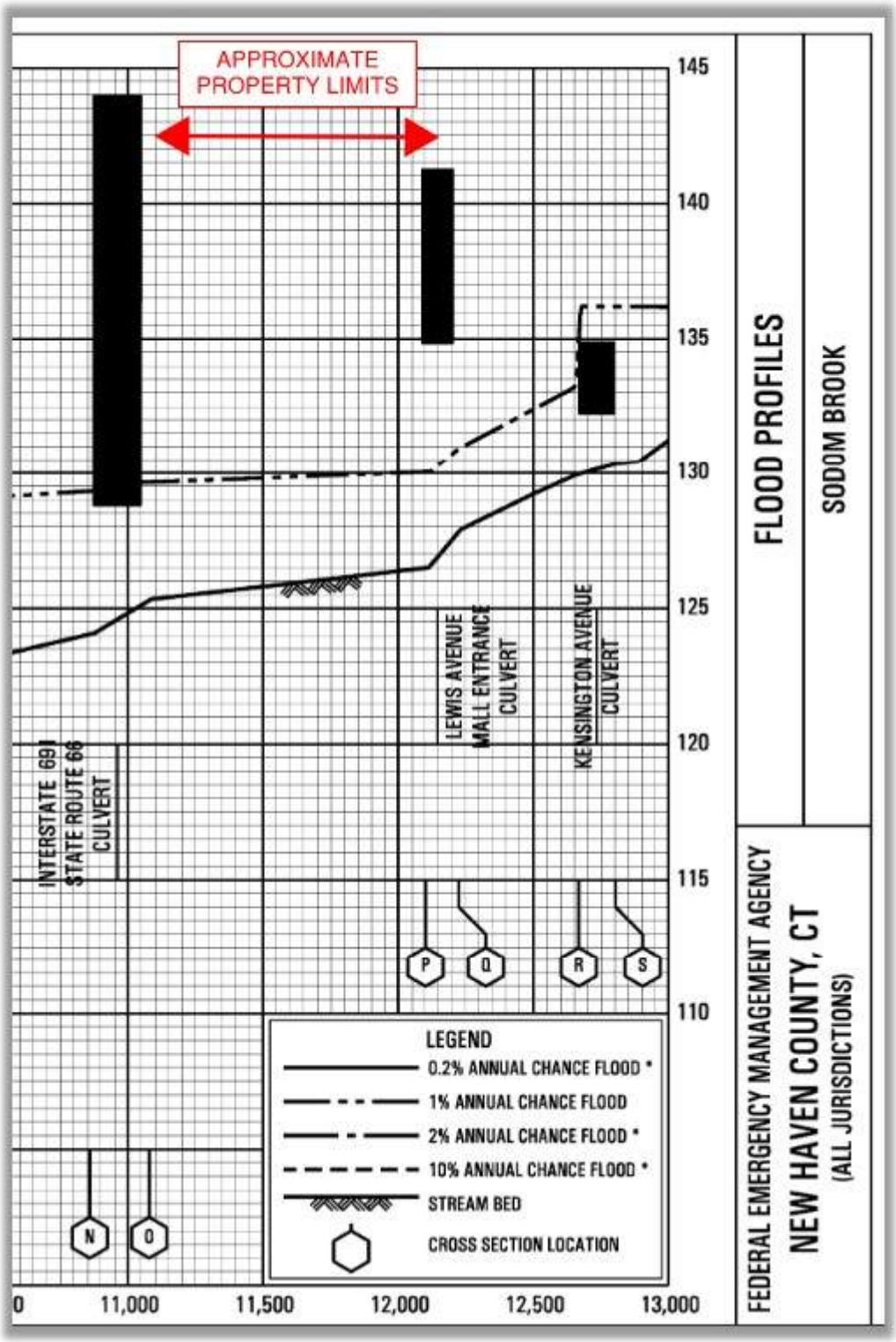
From: Kevin McCutchan <KMcCutchan@TigheBond.com>
Sent: Thursday, February 4, 2021 1:42 PM
To: Burns, Monique G. <Monique.Burns@ct.gov>
Cc: Ward, Donald L <Donald.Ward@ct.gov>
Subject: RE: OSTA Drainage Checklist - Meriden Retail Health

Hi Monique,
Thank you for the quick review and response.
However, we would like to request a second closer look at this specific to the property in which this site is located, which we believe does not contribute stormwater to that area for flooding (Lewis Street at I-691 over pass).
Can you review the following, and expand on the history of flooding if you believe warranted with respect to this property?

The subject property for this site is highlighted in orange on the image below from the Meriden GIS website.
All flow from the property is discharged to Sodom Brook.
The elevations along Lewis Ave and the exit 6 ramp abutting this section of Sodom Brook are about elevation 145 and higher (lowest at mall entrance off Lewis Ave).
The FEMA 100 year flood profile for Sodom Brook is approximately elevation 130 along this property, which is contained well below the banks of the brook in this area and well below the elevation of Lewis Ave and the exit 6 ramp.
We do not believe any flow from this site contributes to flooding farther south along Lewis Ave, at the I-691 over pass.
Images below, and same are attached, for reference.
If preferred, feel free to call me at 860-919-4110 to discuss further.







Thank you,
Kevin

Kevin McCutchan, PE, LEED AP| Senior Engineer
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From: Burns, Monique G. <Monique.Burns@ct.gov>
Sent: Wednesday, February 3, 2021 2:18 PM
To: Kevin McCutchan <KMcCutchan@TigheBond.com>
Cc: Ward, Donald L <Donald.Ward@ct.gov>
Subject: Re: OSTA Drainage Checklist - Meriden Retail Health

[Caution - External Sender]

Hi Kevin, I checked my records and found a history of flooding at the Lewis Street and I-691 over pass.

Regards,

Monique G. Burns, District One Drainage Engineer
Connecticut Department of Transportation
1107 Cromwell Avenue
Rocky Hill, CT 06067
860-258-4504 (office)
860-478-3156 (cell)

From: Kevin McCutchan <KMcCutchan@TigheBond.com>
Sent: Wednesday, February 3, 2021 9:30 AM
To: Burns, Monique G. <Monique.Burns@ct.gov>
Cc: Ward, Donald L <Donald.Ward@ct.gov>
Subject: OSTA Drainage Checklist - Meriden Retail Health

Hi Monique,
We are preparing a CTDOT OSTA Major Traffic Generator Administrative Decision Request/Checklist for a proposed project at 460 Lewis Avenue in Meriden (former Macy's in the Westfield's Meriden Mall). As part of that application, there is a drainage checklist which includes consulting with the District regarding flooding or drainage problems at the site (see below).
Can you confirm whether you are the appropriate contact for review of this, or otherwise direct me to the correct individual or department?

The southern edge of this property borders the I-691 R.O.W. between exits 5 and 6. The southwestern corner of the property extends to the on ramp at exit 5, and the southeastern corner of the property abuts the exit 6 off ramp. This property drains to Sodom Brook, just north of the I-691 R.O.W. adjacent to the exit 6 off ramp to Lewis Ave. Sodom Brook drains through the I-691 R.O.W. through culverts. For reference, attached is a Site Location Map, survey, and the FEMA flood profile for Sodom Brook at this location.

Please review and let us know if you have knowledge of flood history or known drainage problems at the site, as it relates to the OSTA drainage checklist item.

Flood History (the following must be checked to qualify):

☐ The subject site does not have a history of flooding or known drainage problems. The applicant has consulted with the municipality and the DOT District Drainage office regarding any flood history or known drainage problems at the site. A copy of the meeting/telephone report is attached.

Let me know if you have any questions, or need additional information.
Feel free to call me to discuss if easier. Best number to reach me at is 860-919-4110.

Thank you,
Kevin

Kevin McCutchan, PE, LEED AP| Senior Engineer
Tighe & Bond | 213 Court Street, Suite 1100 | Middletown, CT 06457| T. 860.852.5233 | C. 860.919.4110
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STATE OF CONNECTICUT
STATE TRAFFIC COMMISSION
DEPARTMENT OF TRANSPORTATION
2800 BERLIN TURNPIKE, P.O. BOX 317546
NEWINGTON, CT 06131-7546
Phone: (860)594-3020

CERTIFICATE NO. 13-C

STC NO. 079-9710-01

APPROVED June 16, 1998

EXPIRES June 15, 2000

ISSUED TO: Westfield Design and Construction
11601 Wilshire Boulevard, 12th Floor
Los Angeles, CA 90025

FOR: Meriden Square
470 Lewis Avenue
City of Meriden

pursuant to Section 14-311 of the General Statutes of Connecticut, as revised, and the Regulations of the State Traffic Commission.

The applicant is hereby ordered to comply with the conditions and requirements as set forth in the attached report and plans. Failure to comply with all conditions and requirements will constitute sufficient basis for revocation of the Certificate.

NO PERSON SHALL OPERATE THE DEVELOPMENT OR ANY PORTION THEREOF UNTIL SUCH TIME AS THE APPLICANT HAS COMPLIED WITH THE ABOVE UNLESS PERMISSION HAS BEEN REQUESTED AND RECEIVED FROM THE STATE TRAFFIC COMMISSION TO OPERATE PRIOR TO COMPLETION OF THE CONDITIONS AND REQUIREMENTS.

THIS CERTIFICATE WILL EXPIRE TWO (2) YEARS FROM THE APPROVAL DATE OF THE ATTACHED REPORT UNLESS ALL CONDITIONS AND REQUIREMENTS ARE COMPLIED WITH WITHIN THAT PERIOD OR PERMISSION IS REQUESTED AND OBTAINED FROM THE STATE TRAFFIC COMMISSION TO EXTEND THE EXPIRATION DATE.

Upon due notice from this Commission, this Certificate may be reviewed and modified or revoked in the interest of public safety.

Joseph Santaniello

Joseph Santaniello, P.E.
Executive Director

Date: 8/9/99

TRA-10 REV 1/97

Report By: PIO Date: 6/98 Checked By: JPO Date: 6/98 See Previous STC Report No. 079-9012-01	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION **TRAFFIC INVESTIGATION REPORT TO THE STATE TRAFFIC COMMISSION** **MERIDEN**	STC No: 079-9710-01 Loc. No: Approved By STC Date: JUN 16 1998
Requested By: Westfield Design & Construction How Requested: Certificate Application Date:	Location: Route 71, Lewis Avenue and I-691 at Meriden Square Mall	Joseph Santorelli EXECUTIVE DIRECTOR

Recommendation:

In accordance with Section 14-311 of the Connecticut General Statutes, as revised, it is recommended that the State Traffic Commission issue a certificate to Westfield Design and Construction for the expansion of the Meriden Square Mall, a 1,065,750 sq.ft. gross floor area mall with 4,105 parking spaces, located just north of I-691, between Route 71 and Lewis Avenue in the City of Meriden, stating that the operation thereof will not imperil the safety of the public. This recommendation is referenced to the applicant's plan entitled:

A. "Site Plan – Westfield Shoppingtown-Meriden Square – Westfield Corporation, Inc." Sheet DP-0 dated April 7, 1998.

Plans prepared by Fuss & O'Neill, Inc. entitled:

B. "Meriden Square – Roadway Improvement Plan – Chamberlin Highway, Meriden, Connecticut" Sheet Nos. 1, 2 of 2 dated March 1998.

The recommendation is based on the following conditions:

1. That all conditions of Certificate No. 13-B remain in effect.
2. That the applicant construct the site expansion as shown on the above-referenced Plan A.
3. That the applicant widen Route 71 in conformance with the above-referenced Plans B.
4. That the applicant install overhead and post-mounted signs and pavement markings on West Drive, Route 71 and the I-691 eastbound off-ramp, as shown on the above-referenced Plans B, and in accordance with the "Manual on Uniform Traffic Control Devices."
5. That all pavement markings installed by the applicant on state roads be of either a preformed plastic or epoxy material, or of a material as directed by the Department of Transportation and that all conflicting pavement markings in the areas of required road work be eradicated to the satisfaction of the Department of Transportation.

By Vincent Quinn
Division of Traffic Engineering
Bureau of Engineering and Highway Operations

6. That the applicant revise the traffic control signal on Route 71 at its intersection with West Drive and Cold Spring Avenue. The revision shall include the expansion of the signal phasing to include signalization at the intersection of Route 71 and the I-691 westbound on-ramp. The applicant will be responsible for all costs associated with the signal revision.

7. That the applicant revise the traffic control signal on Route 71 at its intersection with the I-691 eastbound off-ramp. The applicant will be responsible for all costs associated with the signal revision.

8. That the applicant revise the guide rail affected by improvements noted in Condition No. 3 in a manner satisfactory to the Department's District 1 Permits Office. The revisions may include, but are not limited to, the replacement and relocation of the guide rail to conform with current Department design standards, regrading, and installation of appropriate end treatments.

9. That all utility relocations in the State highway right-of-way be at no cost to the State and in accordance with "A Policy on the Accommodations of Utilities on Highway Rights-of-Way."

10. That prior to certificate issuance, the applicant post and maintain a bond in the amount of $331,000 to cover the costs of satisfying the conditions of this report. Upon submission of final design plans, the dollar amount of this bond may be adjusted either upward or downward during the encroachment review process.

11. That within sixty (60) days of the issuance of the Certificate, a copy thereof together with this report, be recorded on the municipal land records in accordance with the attached procedure.

12. That the State Traffic Commission reserves the right to require additional improvements or changes, as deemed necessary, due to the development's traffic in the future. The cost of any additional improvements or changes shall be borne by the owner of the development.

Mr. Ted J. DeSantos, the applicant's authorized representative, concurred with the above recommendations on June 12, 1998, except Condition No. 12.

Chief Robert E. Kosienski, Legal Traffic Authority for the City of Meriden, concurred with the above recommendations on June 12, 1998.

Report of Findings
City of Meriden
Meriden Square Mall Expansion
STC No. 079-9710-01

Site Description:

Meriden Square is an existing mall located just north of I-691 with access points on Route 71, Kensington Avenue and Lewis Avenue in the City of Meriden. The applicant is requesting approval to expand the mall and add a freestanding retail building in the northwesterly part of the property for an additional 188,531 sq.ft. of floor area. Additional parking areas are also being requested. The total size of the mall upon expansion will be 1,065,750 sq. ft. of gross floor area and 4105 parking spaces.

Generated Traffic:

The mall expansion and the proposed retail building are expected to generate approximately 457 trips during the p.m. peak hour (243 entering and 214 exiting) and 696 trips during Saturday peak hour (369 entering and 327 exiting). The entire facility is expected to generate 2709 trips (1433 entering and 1276 exiting) during the p.m. peak hour and 4118 trips (2164 entering and 1954 exiting) during Saturday peak hour. The Bureau of Policy and Planning has reviewed and approved the submitted volumes.

Proposed Improvements and Department's Recommendations:

Currently, the I-691 eastbound off-ramp is a two-lane approach striped as exclusive left and right-turn lanes. The applicant is proposing to change the lane-use on this approach to a left-turn and a combination left and right-turn lane. This change will necessitate the widening of Route 71 in order to accommodate a double left-turn maneuver from the ramp. The traffic signal heads will also need to be shifted to accommodate this revision.

At West Drive, the existing outbound approach is striped as an exclusive right-turn lane and a combination left and through lane. It was recommended by the Department that the lane-use on this approach be revised to a combination left, through and right-turn lane and an exclusive left-turn lane. This change will also necessitate the widening on the west side of Route 71 to accommodate a double left-turn maneuver from West Drive. The applicant is also proposing to install a traffic control signal at the intersection of Route 71 and I-691 westbound on-ramp. However, since the majority of the left turning traffic from West Drive turns onto I-691 westbound on-ramp, it was recommended by the Department that the existing signal at the intersection of Route 71 and West Drive be revised to expand the phasing. This expanded phasing will control the signalization at I-691 westbound on-ramp.

A traffic signal study was conducted by the applicant at the intersection of Route 71 and Lockwood Street, at the request of State Senator T. Gaffey and other city officials. The signal study data was submitted and reviewed by the Department. The Department is in agreement with the applicant's recommendation that signalization is not warranted at the subject intersection at this time.

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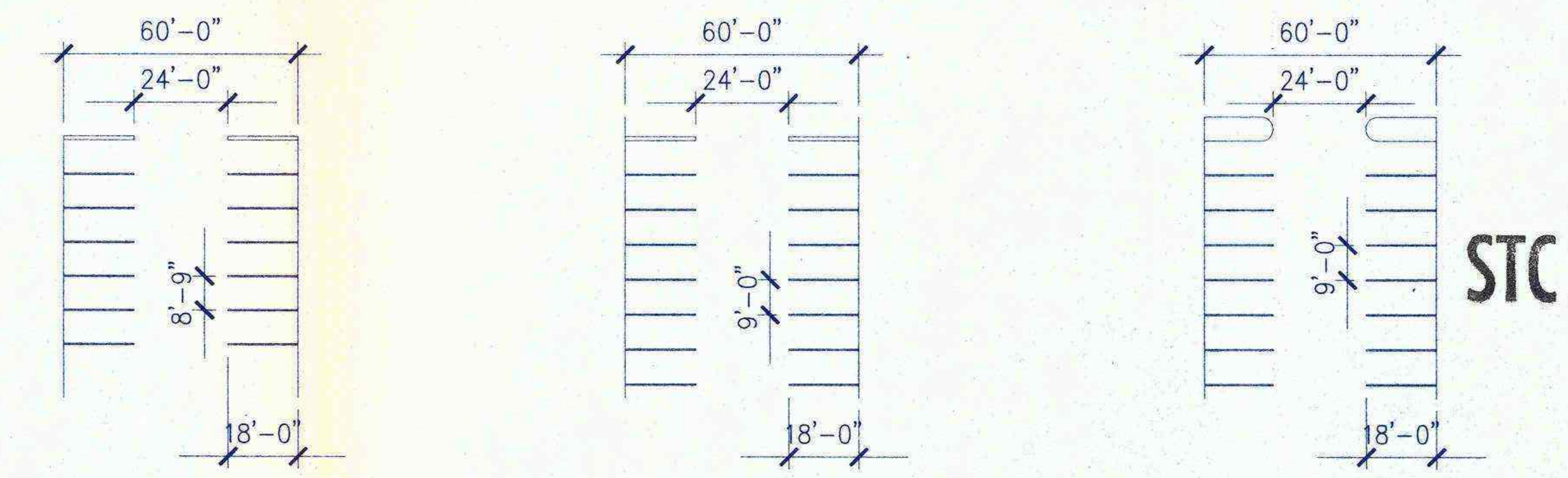


TYPICAL PARKING BAY FOR ROOFTOP PARKING @ AREA OF EXPANSION

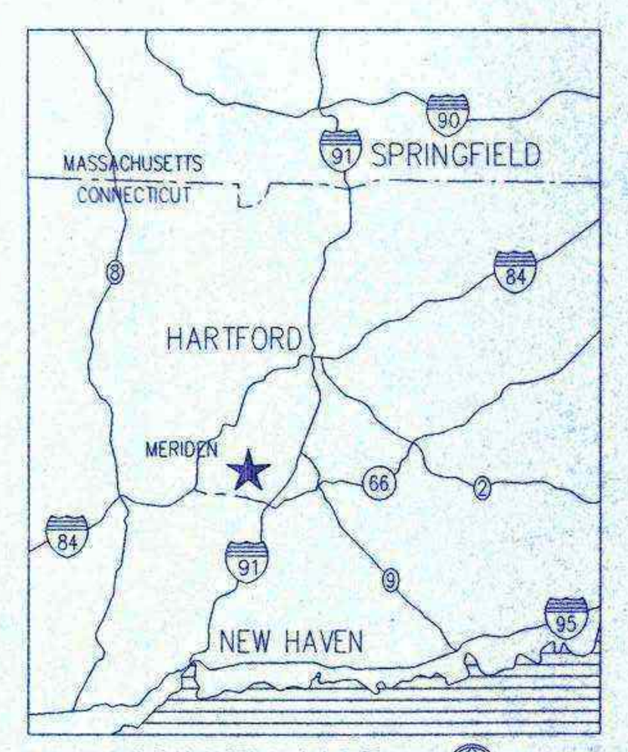
TYPICAL PARKING BAY @ NEW PARKING STRUCTURE

TYPICAL PARKING BAY FOR PARKING LOTS @ AREA OF EXPANSION

STC APPROVED PLAN JUN 1 6 1998

PARKING TABULATION

EXISTING AREA	GLA
FILENE'S	179,256 sf
JCPenney	150,792 sf
SEARS– (INC. TBA)	120,204 sf
MALL SHOPS	292,180 sf
TOTAL	742,432 sf
PROPOSED AREA	GLA
LORD & TAYLOR	90,000 sf
MALL SHOPS	70,000 sf
SATELLITE	7,500 sf
TOTAL	167,500 sf
TOTAL AREA	909,932 sf
PARKING	Spaces
EXISTING SITE	3,358 cars
REVISED ON GRADE	2,384 cars
ROOF PARKING	521 cars
PARKING STRUCTURE	1,206 cars
TOTAL PROVIDED	4,111 cars
TOTAL REQUIRED SPACES	909,932/1000x4.5
REQUIRED	4,095 cars
REQUIRED HC	50 cars
PROVIDED HC	50 cars
RATIO	4.50



VICINITY MAP

Previous Revisions:	Date:	Change:
△		
△		
△		
△		
△		
△		
△		
△		

Westfield Corporation, Inc.
11601 WILSHIRE BLVD. 12TH FLOOR LOS ANGELES CA. 90025-1748 (310) 478-4456

SITE PLAN

This drawing is diagramatic and shows only approximate conditions, locations, quantities and proposed elements. The size, location, existence or identity of any element or specific occupant may be added eliminated or modified at the sole and absolute discretion of the Landlord. Failure to verify actual conditions shall be at the sole risk and responsibility of the tenant.

0' 50' 100' 200'
SCALE

Westfield
SHOPPINGTOWN
MERIDEN SQUARE
470 LEWIS AVENUE MERIDEN, CT 0645 1-203-235-3343

N

MERIDEN SQ
ISSUE DATE: 04.07.98

DP-0
D:\MER\ENTITLE\A11-0.DWG

STC APPROVED PLAN JUN 1 6 1998

SIGN LEGEND

(A)	INSTALL	31-0388 ONLY
(B)	INSTALL	31-0379 ONLY
(C)	INSTALL	MUTCD: TYPE 3 OBJECT MARKER (OM-3R)
(D)	EXISTING	31-0088 ← ONE WAY
(E)	EXISTING	31-0077 ONE WAY →
(F)	EXISTING	51-5202 (NORTH) 51-0116 (CONN. RTE 71) 31-0512 (WRONG WAY)
(G)	EXISTING	51-6611 51-6613 (NORTH & SOUTH) 51-0116 51-0116 (CONN. RTE 71) 51-0081(L) 51-0081(R) (LEFT & RIGHT ARROWS) 31-0512 (WRONG WAY)
(H)	EXISTING	31-0002 Z (STOP)
(I)	EXISTING	31-0521 (DO NOT BLOCK INTERSECTION)
(J)	EXISTING	51-0135 (LEFT ARROW, ONLY) 51-6654 (WEST) 31-6663
(K)	EXISTING	31-0005 (SPEED LIMIT)
(L)	EXISTING	41-0026 (CROSS ROAD SYMBOL)
(M)	EXISTING	51-0116 (CONN. RTE 71)
(N)	EXISTING	31-0509 (DO NOT ENTER)
(O)	EXISTING	51-6613 51-6611 (NORTH & SOUTH) 51-0235 51-0235 (CONN. RTE 71) 51-0081(L) 31-0081R (LEFT & RIGHT ARROWS)
(P)	EXISTING	31-0327 (RIGHT LANE MUST TURN RIGHT)
(Q)	EXISTING	31-0432 ONLY ONLY
(R)	EXISTING	51-0135 (JCT) 51-6654 (WEST) 31-6663 (I-691)
(S)	EXISTING	691-079-230A (I-691 WB ENTRANCE) 691-079-230B
(T)	EXISTING	51-5202 (NORTH) 51-5202 (SOUTH) 51-1688 (HOSPITAL SYMBOL) 51-0119 (ARROW)
(U)	EXISTING	31-0329 ONLY
(V)	EXISTING	51-1071 (TO) 51-6612 (EAST) 51-6663 (INTERSTATE 691) 51-0098 (VERTICAL ARROW)
(W)	EXISTING	51-6611 51-1643 (TO NORTH) 51-0116 51-6652 (CONN. RTE 71) 51-6663 (INTERSTATE 691) 51-0099 (VERTICAL ARROW)
(X)	RELOCATED	31-0512 (WRONG WAY)

RECEIVED
MAR 27 1998
STATE TRAFFIC COMMISSION

NOT RELEASED FOR CONSTRUCTION

PROJ. MANAGER:		
CHIEF DESIGNER:		
REVIEWED	BY	DATE
SURVEY		
SITE		
STRUCTURAL		
REVISION DATE:		
DATUM: H: V:		
SCALE 1"=40'		

FILENAME: 96108R1 MS: MSVIEW PS: PSPLOTL UCS: WRLD PPP:

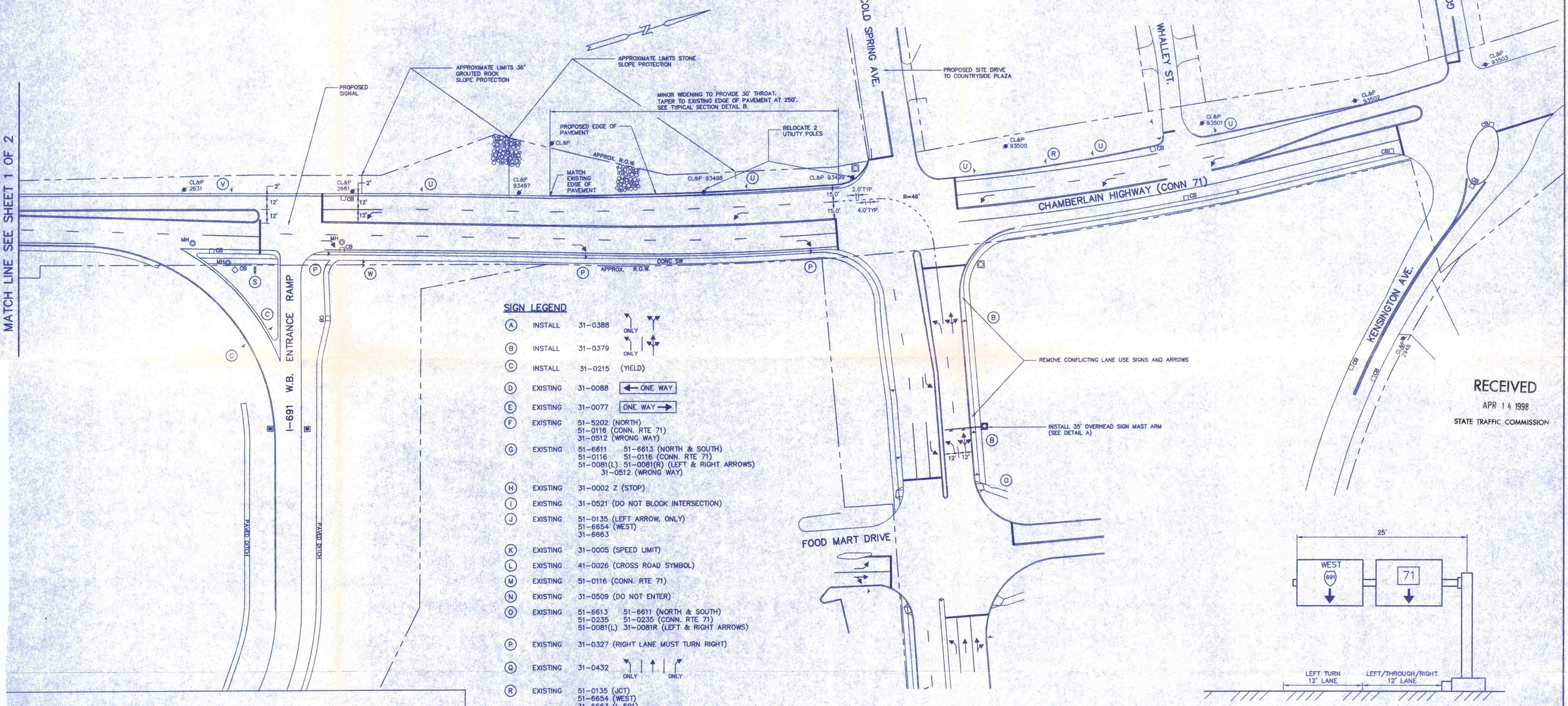
FUSS & O'NEILL INC. *Consulting Engineers*
146 HARTFORD ROAD, MANCHESTER, CONNECTICUT 06040
(860) 646-2469

MERIDEN SQUARE
ROADWAY IMPROVEMENT PLAN

CHAMBERLIN HWY. MERIDEN, CONNECTICUT

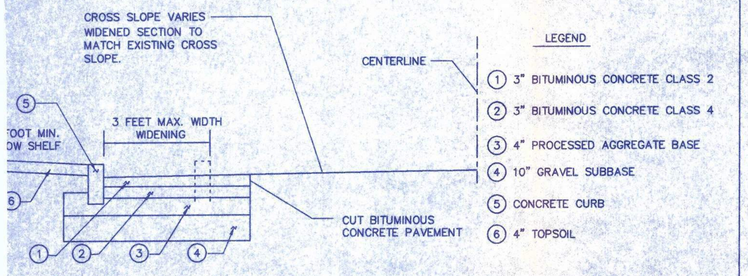
JOB NUMBER	PHASE	DATE	
96-108A2	4700	MARCH 1998	SHEET NO. 1 OF 2

MATCH LINE SEE SHEET 1 OF 2



SIGN LEGEND

(A)	INSTALL	31-0388	ONLY / ONLY
(B)	INSTALL	31-0379	ONLY / ONLY
(C)	INSTALL	31-0215	(YIELD)
(D)	EXISTING	31-0088	← ONE WAY
(E)	EXISTING	31-0077	ONE WAY →
(F)	EXISTING	51-5202 (NORTH) 51-0116 (CONN. RTE 71) 31-0512 (WRONG WAY)	
(G)	EXISTING	51-6611 51-6613 (NORTH & SOUTH) 51-0116 51-0116 (CONN. RTE 71) 51-0081(L) 51-0081(R) (LEFT & RIGHT ARROWS) 31-0512 (WRONG WAY)	
(H)	EXISTING	31-0002 Z (STOP)	
(I)	EXISTING	31-0521 (DO NOT BLOCK INTERSECTION)	
(J)	EXISTING	51-0135 (LEFT ARROW, ONLY) 51-6654 (WEST) 31-6663	
(K)	EXISTING	31-0005 (SPEED LIMIT)	
(L)	EXISTING	41-0026 (CROSS ROAD SYMBOL)	
(M)	EXISTING	51-0116 (CONN. RTE 71)	
(N)	EXISTING	31-0509 (DO NOT ENTER)	
(O)	EXISTING	51-6613 51-6611 (NORTH & SOUTH) 51-0235 51-0235 (CONN. RTE 71) 51-0081(L) 31-0081R (LEFT & RIGHT ARROWS)	
(P)	EXISTING	31-0327 (RIGHT LANE MUST TURN RIGHT)	
(Q)	EXISTING	31-0432	ONLY / ONLY
(R)	EXISTING	51-0135 (JCT) 51-6654 (WEST) 31-6663 (I-691)	
(S)	EXISTING	691-079-230A (I-691 WB ENTRANCE) 691-079-230B	
(T)	EXISTING	51-5202 (NORTH) 51-5202 (SOUTH) 51-1688 (HOSPITAL SYMBOL) 51-0119 (ARROW)	
(U)	EXISTING	31-0329	ONLY
(V)	EXISTING	51-1071 (TO) 51-6612 (EAST) 51-6663 (INTERSTATE 66 51-0098 (VERTICAL ARROW)	
(W)	EXISTING	51-6611 51-1643 (TO NORTH) 51-0116 51-6652 (CONN. RTE 71) 51-6663 (INTERSTATE 691) 51-0099 (VERTICAL ARROW)	
(X)	RELOCATED	31-0512 (WRONG WAY)	



DETAIL B: CHAMBERLAIN HIGHWAY (ROUTE 71)
TYPICAL WIDENING SECTION LOOKING NORTH
NOT TO SCALE

DETAIL A (NTS)
35' OVERHEAD SIGN MAST ARM STRUCTURE

RECEIVED
APR 14 1998
STATE TRAFFIC COMMISSION

STC APPROVED PLAN JUN 16 1998

NOT RELEASED FOR CONSTRUCTION

FILENAME: 96108R1 PPP: MS: MSVIEW PS: PSPLOTR UCS: WRLD

PROJ. MANAGER:			
CHIEF DESIGNER:			
REVIEWED	BY	DATE	
SURVEY			
SITE			
STRUCTURAL			
REVISION DATE:			
DATUM: H:	V:		
SCALE: 1"=40'			

FUSS & O'NEILL INC. *Consulting Engineers*
146 HARTFORD ROAD, MANCHESTER, CONNECTICUT 06040
(860) 646-2469

MERIDEN SQUARE
ROADWAY IMPROVEMENT PLAN
CHAMBERLIN HWY. MERIDEN, CONNECTICUT

JOB NUMBER	PHASE	DATE	SHEET NO.
96-108A2	4700	MARCH 1998	2 OF 2

PLANNING
COMMISSION-DIVISION

CITY OF MERIDEN

Tel. (203) 630-4081 Fax (203) 630-5883

April 26, 2004

B L Companies
C/o John Schmitz
355 Research Parkway
Meriden, CT 06450

RE: 470 Lewis Avenue – Westfield Corporation, Inc.

The Planning Commission of the City of Meriden at its regular meeting of April 14, 2004 voted to approve the proposed addition and façade treatments regarding the location of Best Buy and Dick's at the above mentioned site.

This approval is conditioned upon:

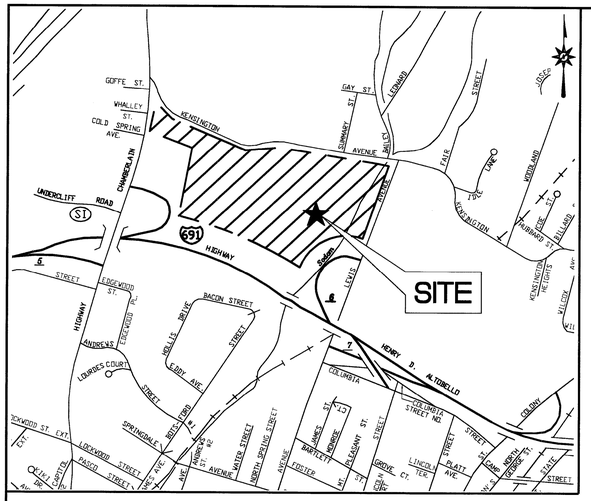
1. Receipt and compliance with revised plans showing:
   a. Note the square footage of the expansion.
   b. Clearly note that existing light poles will be utilized in the revised parking area or replacement poles will not be more than 20' in height.
2. Receipt of revised landscaping plan to be approved by the Planning Department.
3. Revise water trench detail per the Engineering Department's approval.
4. Finalize storm drainage per the Engineering Department's approval.
5. Receipt of bond to be set by staff. Said bond will be calculated upon receipt of the above revise plans.

Please note the Commission's direction to extend the lower black façade and color under the proposed blue Best Buy sign. This treatment is opposed to the proposed black façade treatment.

Very truly yours,

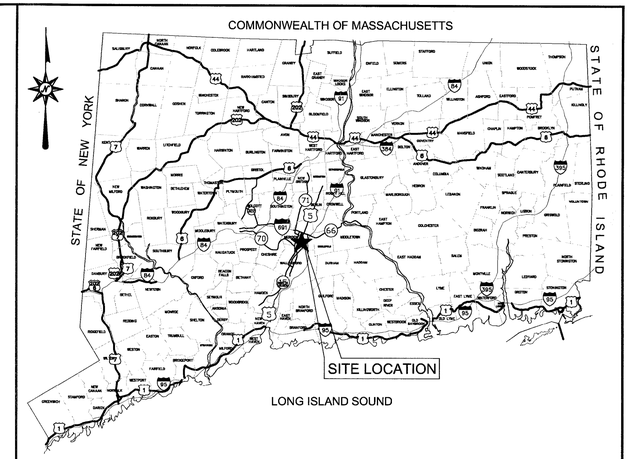
Dominick J. Caruso, AICP
CITY PLANNER

DJC/twc



LOCATION MAP

NTS



VICINITY MAP

NTS

CERTIFICATE OF APPROVAL APPLICATION

FOR

Westfield
SHOPPINGTOWN
MERIDEN SQUARE

CHAMBERLAIN HIGHWAY
LEWIS, AND KENSINGTON AVENUE
MERIDEN, CONNECTICUT

PREPARED FOR:

WESTFIELD CORPORATION, INC
11601 WILSHIRE BOULEVARD, 12TH FLOOR
LOS ANGELES, CALIFORNIA 90025

PREPARED BY:

BL Companies

ARCHITECTURE ENGINEERING PLANNING LANDSCAPE ARCHITECTURE
LAND SURVEYING ENVIRONMENTAL SCIENCES

355 RESEARCH PARKWAY
MERIDEN, CONNECTICUT 06450
(203) 630-1406
(203) 630-2615 Fax

NOT FOR CONSTRUCTION
FOR PERMITTING ONLY

APPROVED
CITY OF MERIDEN
PLANNING COMMISSION
DATE April 14, 2004
w conditions

CONTENTS

OWNER/DEVELOPER:

WESTFIELD CORPORATION, INC.
11601 WILSHIRE BOULEVARD, 12TH FLOOR
LOS ANGELES, CA 90025
C/O DARIEN COLEMAN
PHONE: 203-235-3343

RECEIVED
MAY 05 2004
PLANNING DEPT.
CITY OF MERIDEN

STATE OF CONNECTICUT
ROBERT G. EVANS
No. 20071
LICENSED
PROFESSIONAL ENGINEER

DATES

ISSUE DATE: MARCH 30, 2004
REVISION: APRIL 9, 2004 - BID PACKAGE
MAY 7, 2004 - REVISED PER CONDITIONS OF APPROVAL

CAD FILE: CVC75001

LEGEND

85	INDICATES NUMBER OF PARKING SPACES IN SECTION
(21)	INDICATES NUMBER OF PARKING SPACES IN BAY
▫ UGT BOX	UNDERGROUND TELEPHONE BOX
	STORM DRAIN & CATCH BASIN
	STORM DRAIN & MANHOLE
——S—	SANITARY SEWER & MANHOLE
	WATER MAIN & HYDRANT
	WATER LINE & GATE VALVE
—OHE/T—	OVERHEAD ELECTRIC AND TELEPHONE
—E—	UNDERGROUND ELECTRIC & MANHOLE
—T—	UNDERGROUND TELEPHONE & MANHOLE
	GAS LINE & GATE VALVE
WCR	WHEEL CHAIR RAMP
	TRAFFIC SIGN
	HANDICAP PARKING SPACE
	GUARD RAIL

No.	DATE	REVISION	BY
1	06/15/93	GENERAL REVISIONS	GLC

EXHIBIT "A"

ALTA/ACSM TITLE INSURANCE PLAN

MERIDEN SQUARE

MERIDEN, CONNECTICUT

PREPARED FOR

MERIDEN SQUARE PARTNERSHIP

611 OLIVE STREET, SUITE 1555, ST. LOUIS, MISSOURI 63101-1797 (314)342-6200

50 0 50 100 150 200 FEET
25 0 25 50 METERS
SCALE: 1"=50 Feet
1"=15.240 Meters

21 MAY 1993

allan h. swanson, inc.
land surveyors — planners — civil engineers
3 Congress Street, Nashua, N.H. 03062-3399 (603) 883-2057 — Fax (603) 883-5057

SHEET 2 OF 5

File Number	Dwg	Size	Field Book & Page
3355	F051	D	794,798

No.	DATE	REVISION	BY
1	06/17/93	GENERAL REVISIONS	GLC

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No.	DATE	REVISION	BY
1	06/15/93	GENERAL REVISIONS	GLC

STATE OF CONN. CONTROL DISKS
USED AS BASIS FOR SURVEY

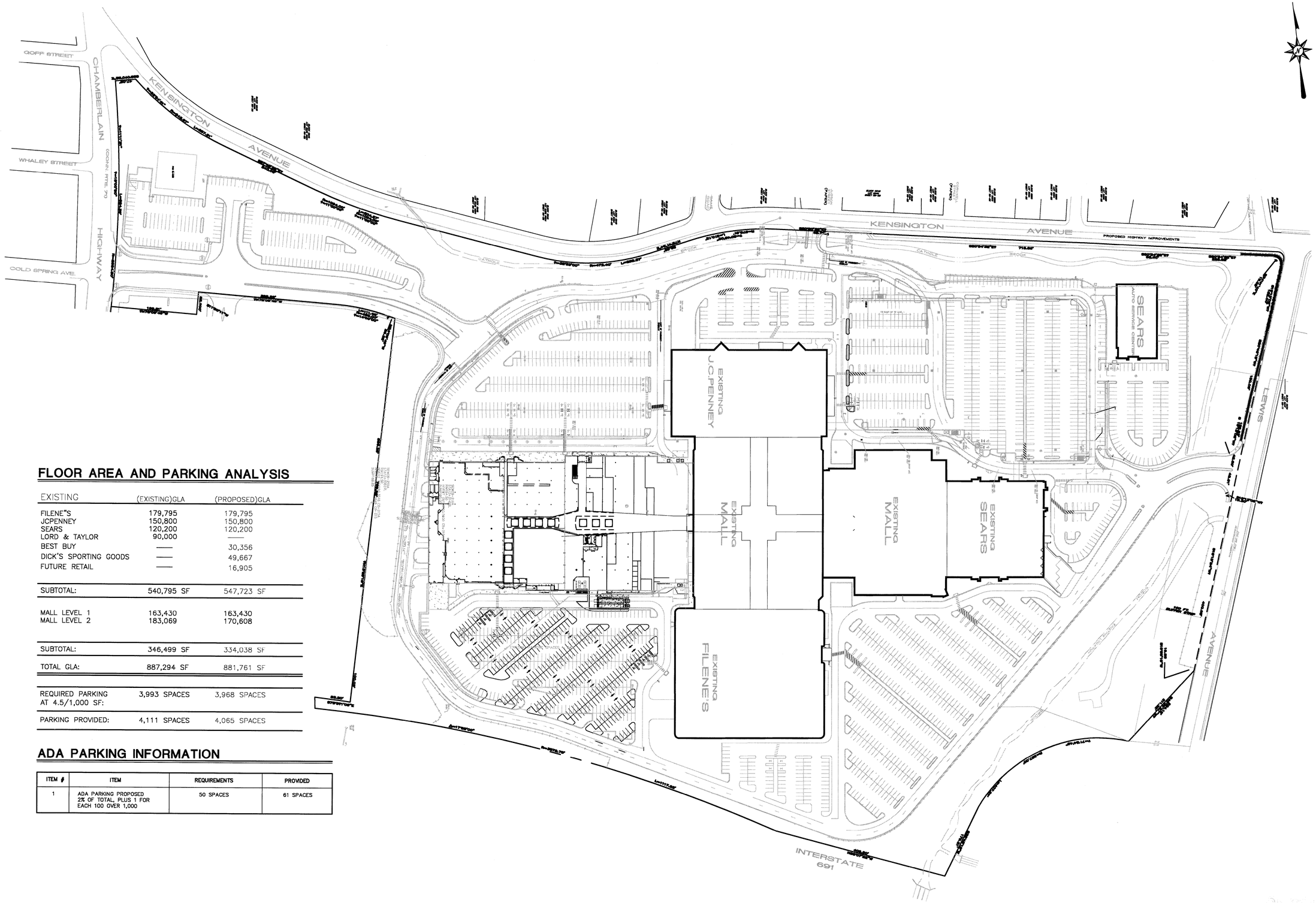
DISK (4308)	DISK (4314)
N 281372.44	N 280283.53
E 582375.59	E 584867.21
DISK (4309)	DISK (4315)
N 280987.88	N 280094.98
E 582290.90	E 585114.31

SEE SHEET 3 OF 5

SHEET 4 OF 5

3355	F053	D	794,798
File Number	Dwg	Size	Field Book & Page

MAY 0 5 20



FLOOR AREA AND PARKING ANALYSIS

EXISTING	(EXISTING)GLA	(PROPOSED)GLA
FILENE"S	179,795	179,795
JCPENNEY	150,800	150,800
SEARS	120,200	120,200
LORD & TAYLOR	90,000	——
BEST BUY	——	30,356
DICK'S SPORTING GOODS	——	49,667
FUTURE RETAIL	——	16,905
SUBTOTAL:	540,795 SF	547,723 SF
MALL LEVEL 1	163,430	163,430
MALL LEVEL 2	183,069	170,608
SUBTOTAL:	346,499 SF	334,038 SF
TOTAL GLA:	887,294 SF	881,761 SF
REQUIRED PARKING AT 4.5/1,000 SF:	3,993 SPACES	3,968 SPACES
PARKING PROVIDED:	4,111 SPACES	4,065 SPACES

ADA PARKING INFORMATION

ITEM #	ITEM	REQUIREMENTS	PROVIDED
1	ADA PARKING PROPOSED 2% OF TOTAL, PLUS 1 FOR EACH 100 OVER 1,000	50 SPACES	61 SPACES

BL Companies
ARCHITECTURE
ENGINEERING
PLANNING
LANDSCAPE ARCHITECTURE
LAND SURVEYING
ENVIRONMENTAL SCIENCES

355 Research Parkway
Meriden, CT 06450
(203) 630-1406
(203) 630-2615 Fax

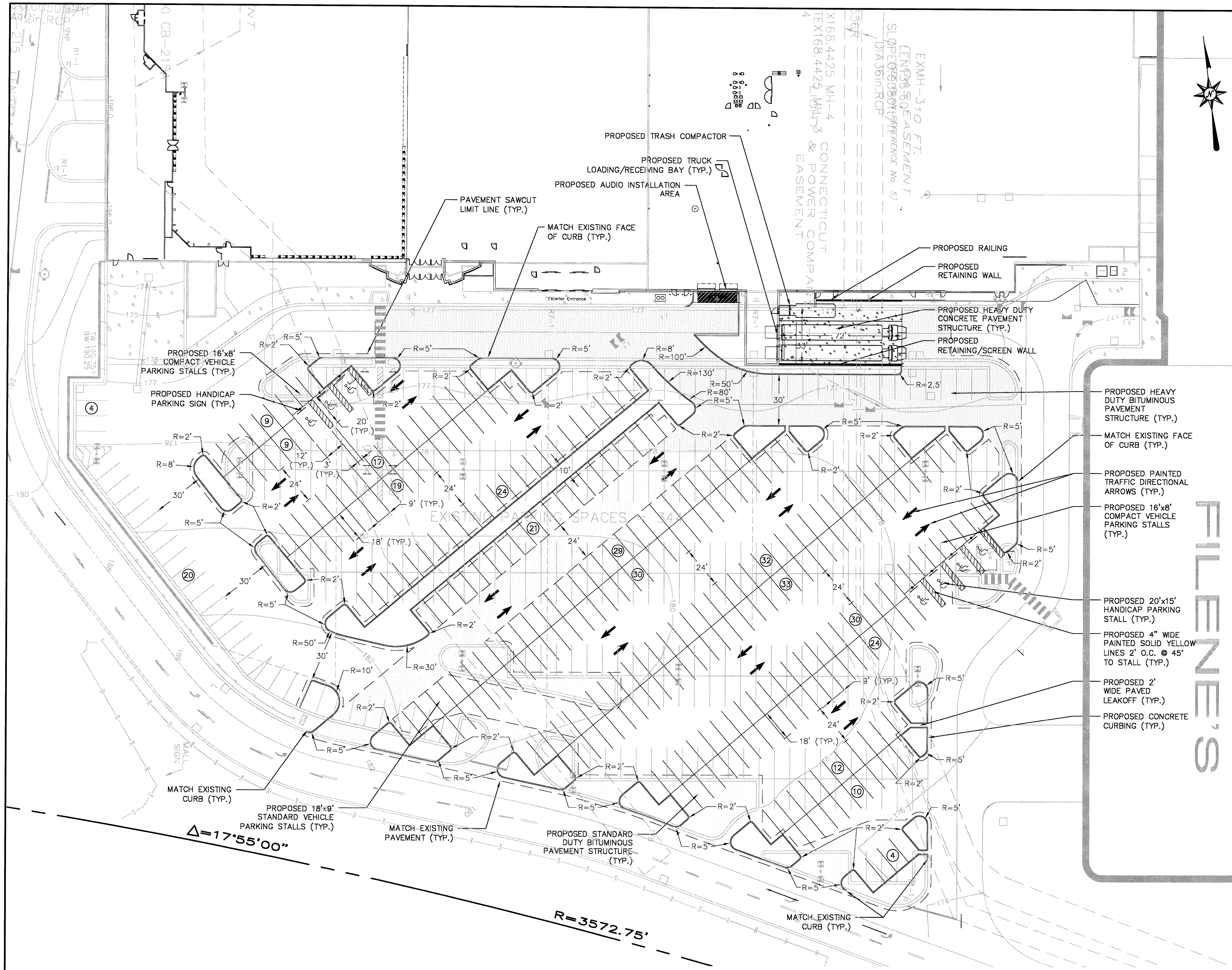
WESTFIELD SHOPPINGTOWN
470 LEWIS AVENUE
MERIDEN, CONNECTICUT

REVISIONS
No. | Description | Date
1. | BID PACKAGE | 04/09/04

Designed
Drawn
Checked
Approved
Scale 1"=120'
Project No. 04C750
Date 3/30/04
CAD File OPC75001

Title
OVERALL SITE PLAN

Sheet No.
OP-1



SITE PLAN NOTES

1. ALL CONSTRUCTION SHALL COMPLY WITH PROJECT SPECIFICATION MANUAL, CITY OF MERIDEN DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS IN THE ABOVE REFERENCED HEIRACHY. IF SPECIFICATIONS ARE IN CONFLICT, THE MORE STRINGENT SPECIFICATION SHALL APPLY. ALL CONSTRUCTION SHALL PERFORMED IN ACCORDANCE WITH ALL APPLICABLE OSHA, FEDERAL, STATE AND LOCAL REGULATIONS.

2. THE OWNER IS RESPONSIBLE FOR OBTAINING ALL NECESSARY ZONING PERMITS REQUIRED BY GOVERNMENT AGENCIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN ALL COUNTY AND CITY CONSTRUCTION PERMITS, INCLUDING DOT PERMITS AND SEWER AND WATER CONNECTION PERMITS. THE CONTRACTOR SHALL POST ALL BONDS, PAY ALL FEES, PROVIDE PROOF OF INSURANCE AND PROVIDE TRAFFIC CONTROL NECESSARY FOR THIS WORK.

3. REFER TO OTHER PLANS, DETAILS AND PROJECT MANUAL FOR ADDITIONAL INFORMATION. THE CONTRACTOR SHALL VERIFY ALL SITE CONDITIONS IN THE FIELD AND CONTACT THE OWNER'S REPRESENTATIVE AND SITE ENGINEER IF THERE ARE ANY QUESTIONS OR CONFLICTS REGARDING THE CONSTRUCTION DOCUMENTS AND/OR FIELD CONDITIONS SO THAT APPROPRIATE REVISIONS CAN BE MADE PRIOR TO BIDDING. ANY CONFLICT BETWEEN THE DRAWINGS AND SPECIFICATIONS SHALL BE CONFIRMED WITH THE OWNER'S REPRESENTATIVE PRIOR TO BIDDING.

4. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL PRODUCTS, MATERIALS AND PLAN SPECIFICATIONS TO THE OWNER AND SITE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO FABRICATION OR DELIVERY TO THE SITE. ALLOW A MINIMUM OF 14 WORKING DAYS FOR REVIEW.

5. THE CONTRACTOR SHALL FOLLOW THE SEQUENCE OF CONSTRUCTION NOTES PROVIDED ON THE EROSION CONTROL PLAN.

6. THE CONTRACTOR SHALL REFERENCE ARCHITECTURAL PLANS FOR EXACT DIMENSIONS AND CONSTRUCTION DETAILS OF BUILDING, LOADING DOCK AREA, AND THE RAISED CONCRETE SIDEWALKS AND RAMPS.

7. SHOULD ANY UNCHARTED OR INCORRECTLY CHARTED, EXISTING PIPING OR OTHER UTILITY BE UNCOVERED DURING EXCAVATION, CONSULT THE OWNER'S REPRESENTATIVE AND SITE ENGINEER IMMEDIATELY FOR DIRECTIONS BEFORE PROCEEDING FURTHER WITH WORK IN THIS AREA.

8. DO NOT INTERRUPT EXISTING UTILITIES SERVICING FACILITIES OCCUPIED AND USED BY THE OWNER OR OTHERS DURING OCCUPIED HOURS EXCEPT WHEN SUCH INTERRUPTIONS HAVE BEEN AUTHORIZED IN WRITING BY THE OWNER AND THE LOCAL MUNICIPALITIES. INTERRUPTIONS SHALL ONLY OCCUR AFTER ACCEPTABLE TEMPORARY SERVICE HAS BEEN PROVIDED.

9. ALL SITE DIMENSIONS ARE REFERENCED TO THE FACE OF CURBS OR EDGE OF PAVING UNLESS OTHERWISE NOTED. ALL BUILDING DIMENSIONS ARE REFERENCED TO THE OUTSIDE FACE OF THE STRUCTURE.

10. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TRAFFIC DEVICES FOR PROTECTION OF VEHICLES AND PEDESTRIANS CONSISTING OF DRUMS, BARRIERS, SIGNS, LIGHTS, FENCES, TRAFFIC CONTROLLERS AND UNIFORMED TRAFFIC OFFICERS AS REQUIRED, ORDERED BY THE ENGINEER OR REQUIRED BY THE LOCAL GOVERNING AUTHORITIES.

11. REFER TO DETAIL SHEETS FOR PAVEMENT, CURBING, AND SIDEWALK INFORMATION.

12. TRAFFIC CONTROL SIGNAGE SHALL CONFORM TO THE STATE DOT STANDARD DETAIL SHEETS AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. SIGNS SHALL BE INSTALLED PLUMB WITH THE EDGE OF THE SIGN 2' OFF THE FACE OF THE CURB, AND WITH 7' VERTICAL CLEARANCE UNLESS OTHERWISE DETAILED OR NOTED.

13. THE CONTRACT LIMIT IS THE PROPERTY LINE UNLESS OTHERWISE SPECIFIED.

14. THE CONTRACTOR SHALL ABIDE BY ALL OSHA FEDERAL STATE AND LOCAL REGULATIONS WHEN OPERATING CRANES, BOOMS, HOISTS, ETC. IN CLOSE PROXIMITY TO OVERHEAD ELECTRIC LINES. IF CONTRACTOR MUST OPERATE EQUIPMENT CLOSE TO ELECTRIC LINES, CONTACT POWER COMPANY TO MAKE ARRANGEMENTS FOR PROPER SAFEGUARDS. ANY UTILITY COMPANY FEES SHALL BE PAID FOR BY THE CONTRACTOR.

15. THE CONTRACTOR SHALL SUBMIT A SHOP DRAWING OF THE PAINT MIXTURE PRIOR TO STRIPING.

16. PAVEMENT MARKING KEY:
ORDINA
- 4" SYDL 4' SOLID YELLOW DOUBLE LINE
- 4" SYL 4" SOLID YELLOW LINE
- 4" SWL 4" SOLID WHITE LINE
- 12" SWSB 12" SOLID WHITE STOP BAR
- 4" BWL 4" BROKEN WHITE LINE 10' STRIPE 30' SPACE

17. PARKING SPACES SHALL BE STRIPED WITH 4" SWL; HATCHED AREA SHALL BE STRIPED WITH 4 ' SWL AT A 45° ANGLE, 2' ON CENTER. HATCHING, SYMBOLS, AND STRIPING FOR HANDICAPPED SPACES SHALL BE PAINTED YELLOW. OTHER MARKINGS SHALL BE PAINTED WHITE OR AS NOTED.

18. THE CONTRACTOR SHALL RESTORE ANY DRAINAGE STRUCTURE, PIPE, UTILITY, PAVEMENT, CURBS, SIDEWALKS, LANDSCAPED AREAS OR SIGNAGE DISTURBED DURING CONSTRUCTION TO THEIR ORIGINAL CONDITION OR BETTER, AS APPROVED BY THE OWNER'S REPRESENTATIVE.

19. THE CONTRACTOR SHALL PROVIDE AS-BUILT RECORDS OF ALL CONSTRUCTION (INCLUDING UNDERGROUND UTILITIES) TO THE OWNER AT THE END OF CONSTRUCTION.

20. THE ARCHITECT OR ENGINEER IS NOT RESPONSIBLE FOR SITE SAFETY MEASURES TO BE EMPLOYED DURING CONSTRUCTION. THE ARCHITECT AND ENGINEER HAVE NO CONTRACTUAL DUTY TO CONTROL THE SAFEST METHODS OR MEANS OF THE WORK, JOB SITE RESPONSIBILITIES, SUPERVISION OR TO SUPERVISE SAFETY AND DOES NOT VOLUNTARILY ASSUME ANY SUCH DUTY OR RESPONSIBILITY.

21. THE CONTRACTOR SHALL COMPLY WITH CFR 29 PART 1926 FOR EXCAVATION TRENCHING AND TRENCH PROTECTION REQUIREMENTS.

22. EXISTING BOUNDARY AND TOPOGRAPHY IS BASED ON DRAWING ENTITLED "EXHIBIT 'A' ALTA/ACSM TITLE INSURANCE PLAN, MERIDEN SQUARE, MERIDEN, CONNECTICUT, PREPARED FOR MERIDEN SQUARE PARTNERSHIP, SCALE 1"=50', DATED 21 MAY 1993, REVISED: 06/15/93, PREPARED BY ALLAN H SWANSON, INC, NASHUA, N.H., DWG F051, F052, F053"

23. ALTERNATIVE METHODS AND PRODUCTS OTHER THAN THOSE SPECIFIED MAY BE USED IF REVIEWED AND APPROVED BY THE OWNER, SITE ENGINEER, AND APPROPRIATE REGULATORY AGENCY PRIOR TO INSTALLATION DURING THE BIDDING PROCESS.

24. INFORMATION ON EXISTING UTILITIES AND STORM DRAINAGE SYSTEMS HAS BEEN COMPILED FROM AVAILABLE INFORMATION INCLUDING UTILITY COMPANY AND MUNICIPAL RECORD MAPS AND/OR FIELD SURVEY AND IS NOT GUARANTEED CORRECT OR COMPLETE. UTILITIES AND STORM DRAINAGE SYSTEMS ARE SHOWN TO ALERT THE CONTRACTOR TO THEIR PRESENCE AND THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ACTUAL LOCATIONS AND ELEVATIONS OF ALL UTILITIES AND STORM DRAINAGE SYSTEMS INCLUDING SERVICES. PRIOR TO DEMOLITION OR CONSTRUCTION, THE CONTRACTOR SHALL CONTACT "CALL-BEFORE-YOU-DIG" 72 HOURS BEFORE COMMENCEMENT OF WORK AT (800) 922-4455 AND VERIFY ALL UTILITY AND STORM DRAINAGE SYSTEM LOCATIONS.

25. PAVEMENT MARKINGS SHALL BE HOT APPLIED TYPE IN ACCORDANCE WITH CONNECTICUT DOT SPECIFICATIONS, UNLESS WHERE EPOXY RESIN PAVEMENT MARKINGS ARE INDICATED.

26. AN EROSION CONTROL BOND IS REQUIRED TO BE POSTED BY THE CONTRACTOR BEFORE THE START OF ANY ACTIVITY ON OR OFF SITE. THE AMOUNT OF THE EROSION CONTROL BOND IS TO BE SET BY CITY OF MERIDEN STAFF.

27. THESE PLANS ARE FOR PERMITTING PURPOSES ONLY AND ARE NOT FOR CONSTRUCTION. NO CONSTRUCTION SHALL BEGIN UNTIL APPROVAL OF THE FINAL PLANS IS GRANTED BY ALL GOVERNING REGULATORY AGENCIES.

28. A DEMOLITION PERMIT IS REQUIRED FOR EXISTING BUILDINGS.

29. THE SITE IS CURRENTLY SERVICED BY PUBLIC WATER

30. A PORTION OF THE PROPERTY IS LOCATED WITHIN ZONE AE, SPECIAL FLOOD HAZARD AREAS INUNDATED BY THE 100-YEAR FLOOD, BASE FLOOD ELEVATIONS DETERMINED, AS IDENTIFIED ON FIRM MAP, COMMUNITY PANEL NUMBER 090081 0002 C, REVISED NOVEMBER 20, 2000, MERIDEN, CONNECTICUT, PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY. THE DISTURBANCE LIMITS OF THIS PROJECT ARE WHOLLY LOCATED WITHIN ZONE X, AREAS DETERMINED TO BE OUTSIDE 500-YEAR FLOODPLAIN, AS IDENTIFIED ON THE AFOREMENTIONED MAP.

31. THERE ARE NO WETLANDS LOCATED WITHIN THE LIMITS OF DISTURBANCE.

32. THE EXISTING MALL IS TO REMAIN OPEN FOR BUSINESS DURING THE CONSTRUCTION OF THE NEW TENANT SPACE. PHASING OF IMPROVEMENTS INCLUDING UTILITY INSTALLATION, LIGHTING, AND TRAFFIC ISLANDS SHALL BE COORDINATED WITH THE OWNER'S REPRESENTATIVE TO MINIMIZE NEGATIVE IMPACTS TO EXISTING TENANTS DURING THE CONSTRUCTION PERIOD.

33. 12" SWSB (STOP BAR) AND 4" SDYL AND SWL PAVEMENT MARKINGS LOCATED IN DRIVEWAYS SHALL BE EPOXY RESIN TYPE ACCORDING TO CONNECTICUT DOT SPECIFICATIONS.

34. FIRE LANES SHALL BE ESTABLISHED AND PROPERLY DESIGNATED IF REQUIRED BY THE CITY DISTRICT FIRE MARSHAL.

35. THE CONTRACTOR SHALL REMOVE CONFLICTING PAVEMENT MARKINGS BY METHOD APPROVED BY THE CONNECTICUT DOT.

36. EXISTING LIGHT POLES AND FIXTURES SHALL BE UTILIZED IN THE REVISED PARKING AREA OR REPLACEMENT POLES WILL NOT BE MORE THAN 20 FEET IN HEIGHT. SEE LANDSCAPE PLAN SHEET LL-1 FOR LOCATIONS.

APPROVED
CITY OF MERIDEN
PLANNING COMMISSION
DATE April 14 2004

ZONING INFORMATION

LOCATION: CITY OF MERIDEN, HARTFORD COUNTY			
ZONE: C-2 (GENERAL COMMERCIAL DISTRICT)			
USE: (PERMITTED USE) RETAIL STORE			
ITEM #	ITEM	REQUIREMENTS	PROPOSED
1	MINIMUM LOT AREA	10,000 S.F.	2,719,538 S.F. 62.432 ACRES
2	MINIMUM LOT WIDTH	100 FEET	220'±
3	MINIMUM FRONT SETBACK	55' FROM CENTERLINE OF ROW	72.54 FEET
4	MINIMUM SIDE SETBACK	15 FEET	100'±
5	MINIMUM REAR SETBACK	20 FEET	58'±
6	MAXIMUM BUILDING HEIGHT	75 FEET	LESS THAN 75'

LEGEND

STANDARD DUTY BITUMINOUS PAVEMENT STRUCTURE

HEAVY DUTY BITUMINOUS PAVEMENT STRUCTURE

HEAVY DUTY CONCRETE PAVEMENT STRUCTURE

PAVEMENT SAWCUT LIMIT LINE

CONTRACTOR TO SAWCUT PAVEMENT PAVEMENT STRUCTURE

CONTRACTOR TO SAWCUT PAVEMENT FOR PROPOSED PARKING LOT LIGHTING AND CONDUIT AS NECESSARY AND REPAIR PER TRENCH REPAIR DETAIL SHEET DN-2

BL Companies
ARCHITECTURE
ENGINEERING
PLANNING
LANDSCAPE ARCHITECTURE
LAND SURVEYING
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WESTFIELD SHOPPINGTOWN
470 LEWIS AVENUE
MERIDEN, CONNECTICUT

REVISIONS

No.	Date	Desc.
1.	04/09/04	BID PACKAGE
2.	05/05/04	REVISED FOR CONDITIONS OF APPROVAL

Designed	J.J.S.
Drawn	J.J.S.
Checked	
Approved	
Scale	1"=30'
Project No.	04C750
Date	3/30/04
CAD File	SPC75001

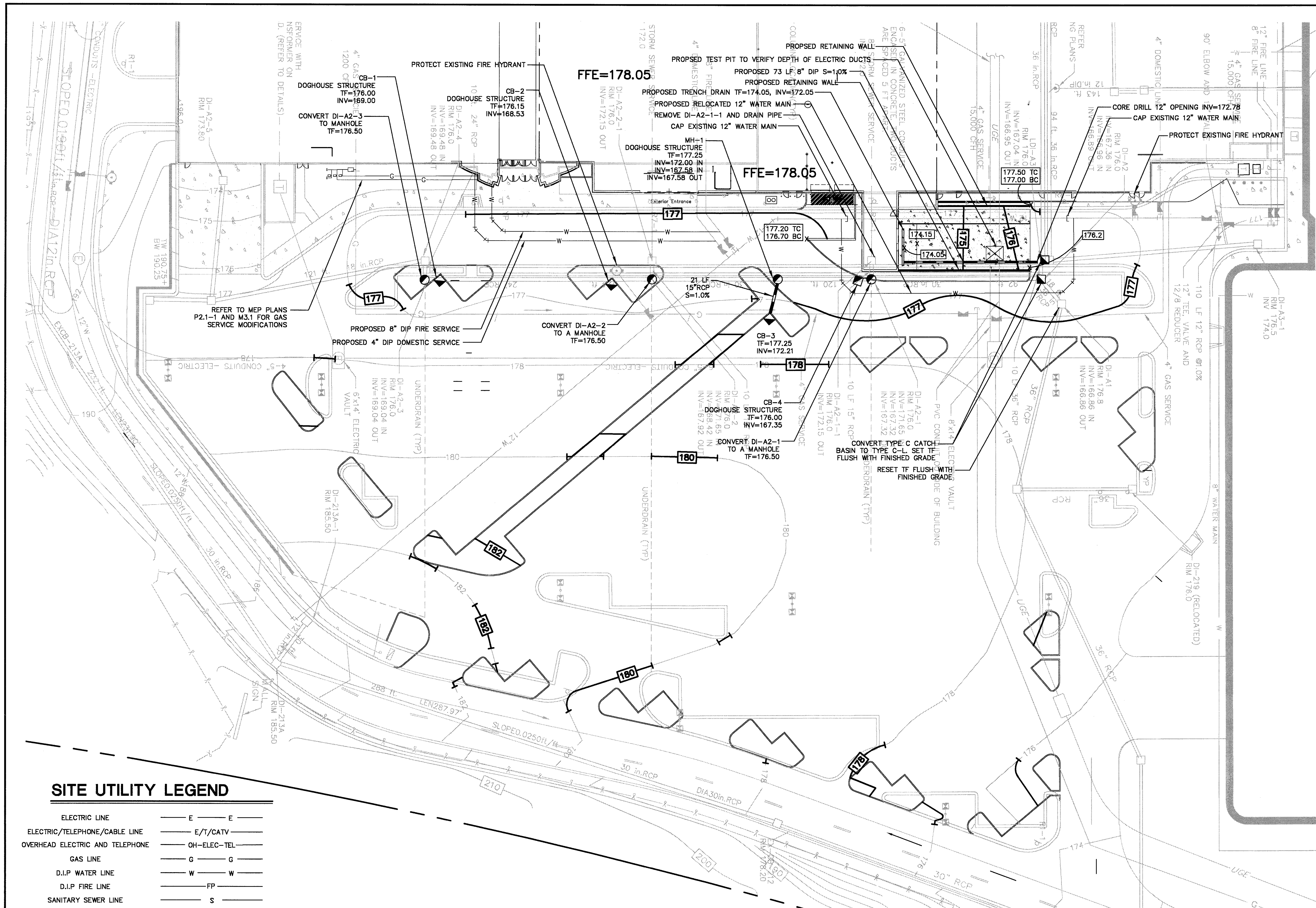
Title

SITE PLAN

Sheet No.

SP-1

Xref (s): BDC75001,



SITE UTILITY LEGEND

ELECTRIC LINE	—— E —— E ——
ELECTRIC/TELEPHONE/CABLE LINE	—— E/T/CATV ——
OVERHEAD ELECTRIC AND TELEPHONE	—— OH–ELEC–TEL ——
GAS LINE	—— G —— G ——
D.I.P WATER LINE	—— W —— W ——
D.I.P FIRE LINE	—— FP ——
SANITARY SEWER LINE	—— S ——
STORM LINE	
CATCH BASIN	
STORM MANHOLE	
SANITARY MANHOLE	●
SANITARY CLEANOUT	○
HYDRANT	
ELECTRICAL TRANSFORMER	T
CONTRACT LIMIT LINE	—— – – ——
LIGHT POLE	

STORM DRAINAGE STRUCTURE CHART

ALL CB's ARE TYPE "C" UNLESS STATED OTHERWISE

DI–A1 RIM 176.8 INV=166.86 IN INV=166.86 OUT	DI–A2–1 RIM 176.0 INV=171.65 IN INV=167.32 IN INV=167.32 OUT	CONVERT DI–A2–2–1 TO A MANHOLE RESET TF=176.50 INV=172.15 OUT	DI–A3 RIM 176.0 INV=167.04 IN INV=172.78 (8"IN) INV=166.95 OUT	CB–3 TF=177.10 INV=172.15
DI–A2 RIM 176.0 INV=167.36 IN INV=166.96 IN INV=166.89 OUT	DI–A2–1–1 RIM 176.0 INV=172.15 OUT	CONVERT DI–A2–3 TO A MANHOLE RESET TF=176.50 INV=169.04 IN INV=169.04 OUT	DI–A3–1 RIM 176.5 INV=174.0	CB–4 TF=176.00 INV=167.35
	DI–A2–2 RIM 176.0 INV=171.65 IN INV=168.42 IN INV=167.92 OUT	DI–A2–4 RIM 176.0 INV=169.48 IN INV=169.48 OUT	CB–1 DOGHOUSE STRUC. TF=176.00 INV=169.00	MH–1 DOGHOUSE STRUC. TF=177.25 INV=172.00 IN INV=167.58 IN INV=167.58 OUT
		DI–A2–5 RIM 173.80	CB–2 DOGHOUSE STRUC. TF=176.15 INV=168.53	TRENCH DRAIN TF=174.05 INV=172.05

CITY OF MERIDEN STANDARD NOTES

WATER MAIN EXTENSION STANDARD NOTES:

1. THE WATER MAIN AND SERVICE CONNECTIONS MUST BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF MERIDEN, ENGINEERING BUREAU AND WATER BUREAU STANDARDS AND SPECIFICATIONS.

2. THE WATER MAIN MUST BE PRESSURE TESTED AND DISINFECTED PER AWWA AND CITY OF MERIDEN WATER BUREAU STANDARDS AND SPECIFICATIONS.

3. RETAINER GLANDS AND THRUST BLOCKS MUST BE PROVIDED AT ALL BENDS AND FITTINGS.

4. THE UNDERGROUND UTILITIES SHOWN ON THIS PLAN HAVE BEEN OBTAINED FROM AVAILABLE RECORDS AND HAVE BEEN LOCATED IN THE FIELD WHERE POSSIBLE. THE ACTUAL LOCATION OF THESE UTILITIES MUST BE VERIFIED BY THE CONTRACTOR. THE CONTRACTOR MUST CONTACT "CALL BEFORE YOU DIG" 1–800–922–4455 FOR LOCATION AND MARKING OF ALL EXISTING UTILITIES PRIOR TO ANY EXCAVATION.

5. UPON COMPLETION OF THE WATER MAIN INSTALLATION, AS–BUILT PLANS MUST BE SUBMITTED TO THE CITY ENGINEERING BUREAU AND CERTIFIED BY A LICENSED LAND SURVEYOR OR CIVIL ENGINEER. THESE PLANS MUST BE IN ACCORDANCE WITH THE ENGINEERING BUREAU STANDARDS.

6. WATER LINES SHALL HAVE A MINIMUM TEN FEET HORIZONTAL SEPARATION AND AN 18" VERTICAL SEPARATION FROM ANY SANITARY SEWER LINE.

7. A PRE–CONSTRUCTION MEETING MUST BE HELD ONE WEEK PRIOR TO BEGINNING CONSTRUCTION TO INCLUDE THE CONTRACTOR, DESIGN ENGINEER, CITY ENGINEERING STAFF, AND WATER BUREAU STAFF. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ORGANIZING THIS MEETING.

8. ALL AFFECTED PROPERTY OWNERS AND THE CITY PUBLIC WORKS FACILITY INSPECTOR MUST BE NOTIFIED BY THE CONTRACTOR A MINIMUM OF 48 HOURS PRIOR TO BEGINNING CONSTRUCTION.

GRADING AND UTILITIES NOTES

GRADING GENERAL NOTES:

1. SEE SITE PLAN FOR ADDITIONAL GENERAL NOTES.

2. THIS DRAWING IS INTENDED TO DESCRIBE GRADING AND UTILITIES ONLY. REFER TO SITE PLAN FOR GENERAL INFORMATION, AND DETAIL SHEETS FOR DETAILS. SEE MEP DRAWINGS FOR BUILDING CONNECTION LOCATIONS AND DETAILS.

3. THE CONTRACTOR SHALL PRESERVE EXISTING VEGETATION WHERE POSSIBLE AND/OR AS NOTED ON DRAWINGS. REFER TO EROSION CONTROL PLAN FOR LIMIT OF DISTURBANCE AND NOTES.

4. TOPSOIL SHALL BE STRIPPED AND STOCKPILED FOR USE IN FINAL LANDSCAPING.

5. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS REQUIRED BY GOVERNMENT AND LOCAL AGENCIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FROM THE LOCAL MUNICIPALITIES REQUIRED TO PERFORM ALL REQUIRED WORK, INCLUDING FOR STREET CUTS AND CONNECTIONS TO EXISTING UTILITIES. THE CONTRACTOR SHALL POST ALL BONDS, PAY ALL FEES, PROVIDE PROOF OF INSURANCE AND PROVIDE TRAFFIC CONTROL NECESSARY FOR THIS WORK.

6. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TRAFFIC DEVICES FOR PROTECTION OF VEHICLES AND PEDESTRIANS CONSISTING OF DRUMS, BARRIERS, SIGNS, LIGHTS FENCES AND UNIFORMED TRAFFIC CONTROLLERS AS REQUIRED, ORDERED BY THE ENGINEER OR REQUIRED BY THE LOCAL GOVERNING AUTHORITIES.

7. VERTICAL DATUM IS BASED ON PLANS PREPARED BY ALLAN H. SWANSON, INC., TITLED ALTA/ACSM TITLE INSURANCE PLAN REVISED 6/15/93.

8. PROPER CONSTRUCTION PROCEDURES SHALL BE FOLLOWED ON ALL IMPROVEMENTS WITHIN THIS PARCEL SO AS TO PREVENT THE SILTING OF ANY WATERCOURSE OR WETLANDS IN ACCORDANCE WITH THE REGULATIONS OF THE DEPARTMENT OF ENVIRONMENTAL PROTECTION GUIDELINES FOR SOIL EROSION AND SEDIMENT POLLUTION CONTROL. IN ADDITION, THE CONTRACTOR SHALL STRICTLY ADHERE TO THE "EROSION CONTROL PLAN" CONTAINED HEREIN. THE CONTRACTOR SHALL BE RESPONSIBLE TO POST ALL BONDS AS REQUIRED BY THE LOCAL MUNICIPALITIES, OR SOIL CONSERVATON SERVICE WHICH WOULD GUARANTEE THE PROPER IMPLEMENTATION OF THE PLAN.

9. ALL SITE WORK, MATERIALS OR CONSTRUCTION, AND CONSTRUCTION METHODS FOR EARTHWORK, STORM DRAINAGE AND UTILITY WORK SHALL CONFORM TO THE SPECIFICATIONS AND DETAILS AND APPLICABLE SECTIONS OF THE STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION UNLESS OTHERWISE STATED IN THE PROJECT MANUAL SPECIFICATIONS. ALL FILL MATERIAL UNDER STRUCTURES AND PAVED AREAS SHALL BE PER THE SPECIFICATIONS, AND SHALL BE PLACED IN ACCORDANCE WITH THE SPECIFICATIONS OF THE DOT, UNDER THE SUPERVISION OF A QUALIFIED PROFESSIONAL ENGINEER. MATERIAL SHALL BE COMPACTED IN 8" LIFTS TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D 1557 AT 3 +/– PERCENT OF OPTIMUM MOISTURE CONTENT.

10. ALL DISTURBANCE INCURRED TO CITY OR STATE PROPERTY DUE TO CONSTRUCTION SHALL BE RESTORED TO ITS PREVIOUS CONDITION OR BETTER, TO THE SATISFACTION OF THE CITY OF MERIDEN AUTHORITY AND STATE OF CONNECTICUT.

11. ALL CONSTRUCTION SHALL COMPLY WITH WESTFIELD CORPORATION AND THE CITY OF MERIDEN'S STANDARDS AND STATE OF CONNECTICUT DOT SPECIFICATIONS. ALL CONSTRUCTION WITHIN A DOT RIGHT OF WAY SHALL COMPLY WITH ALL DEPARTMENT OF TRANSPORTATION STANDARDS. WHERE SPECIFICATIONS OR STANDARDS ARE IN CONFLICT, THE MORE STRINGENT SPECIFICATION OR STANDARD SHALL BE SUPERIOR.

PRODUCT NOTES:

1. SHOP DRAWINGS: THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF MATERIALS AND STRUCTURES FOR REVIEW AND APPROVAL PRIOR TO DELIVERY TO THE SITE. ALLOW 14 WORKING DAYS FOR REVIEW.

2. CAST IRON SOIL PIPE (CISP) AND FITTINGS SHALL BE EXTRA HEAVY BELL & SPIGOT WITH NEOPRENE GASKET JOINTS IN ACCORDANCE WITH ASTM A74 & C564–70

3. COPPER PIPE SHALL BE TYPE K TUBING WITH COMPRESSION FITTINGS.

4. GAS PIPE MATERIAL SHALL BE PER GAS COMPANY REQUIREMENTS.

5. ALL RCP SHALL CONFORM TO THE REQUIREMENTS OF ASTM C–76; ALL RCP SHALL BE CLASS IV UNLESS OTHERWISE SHOWN. JOINTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C–443.

6. MANHOLE SECTIONS AND CONSTRUCTION SHALL CONFORM TO ASTM C–478.

7. HIGH DENSITY POLYETHYLENE (HDPE) MAY BE USED AS AN ALTERNATE TO RCP, STORM SEWER 12" OR GREATER IN DIAMETER SHALL BE HI–Q SURE–LOK 10.8 PIPE AS MANUFACTURED BY HANCOR INC. OR APPROVED EQUAL. HDPE PIPE SHALL HAVE SMOOTH INTERIOR AND CORRUGATED EXTERIOR AND SHALL MEET THE REQUIREMENTS OF AASHTO M294, TYPE S. PIPE SECTIONS SHALL BE JOINED WITH BELL–AND–SPIGOT JOINT MEETING THE REQUIREMENTS OF AASHTO M294. THE BELL SHALL BE AN INTEGRAL PART OF THE PIPE AND PROVIDE A MINIMUM PULL–APART STRENGTH OF 400 POUNDS. THE JOINT SHALL BE WATERTIGHT ACCORDING TO THE REQUIREMENTS OF ASTM D3212. GASKETS SHALL BE MADE OF POLYISOPRENE MEETING THE REQUIREMENTS OF ASTM F477. ALTERNATIVE HDPE PIPE MAY BE USED IF APPROVED BY THE ENGINEER AND CONSTRUCTION MANAGER PRIOR TO ORDERING.

8. HIGH DENSITY POLYETHYLENE (HDPE) STORM SEWER LESS THAN 12" IN DIAMETER SHALL BE HI–Q PIPE AS MANUFACTURED BY HANCOR INC. OR APPROVED EQUAL. HDPE PIPE SHALL HAVE SMOOTH INTERIOR AND CORRUGATED EXTERIOR AND SHALL MEET THE REQUIREMENTS OF AASHTO 252, TYPE S. PIPE SECTIONS SHALL BE JOINED WITH COUPLING BANDS OR EXTERNAL SNAP COUPLERS COVERING AT LEAST 2 FULL CORRUGATIONS ON EACH END OF THE PIPE. SILT–TIGHT (GASKET) CONNECTIONS SHALL INCORPORATE A CLOSED SYNTHETIC EXPANDED RUBBER GASKET. MEETING THE REQUIREMENTS OF AASHTO D1056 GRADE 2A2. GASKETS SHALL BE INSTALLED ON THE CONNECTION BY THE PIPE MANUFACTURER. ALTERNATIVE HDPE PIPE MAY BE USED IF APPROVED BY THE ENGINEER AND CONSTRUCTION MANAGER PRIOR TO ORDERING.

9. DUCTILE IRON PIPE SHALL CONFORM TO AWWA C151 FOR CLASS 52 WITH CEMENT LINING IN ACCORDANCE WITH ANSI A 21.4. FOR WATER MAINS AND SERVICES 3" ID AND LARGER. JOINTS SHALL BE MADE WITH CONCRETE THRUST BLOCKS OR WITH MEGAULUG RETAINER GLANDS OR RODDING TO EXTEND A MINIMUM OF 2 PIPE LENGTHS IN EITHER DIRECTION FROM FITTINGS AND ELBOWS (40 FT MINIMUM). ALL OTHER JOINTS SHALL BE PUSH ON WITH RUBBER GASKETS (TYTON). USE OF OTHER TYPES OF RETAINER GLANDS SHALL REQUIRE USE WITH CLASS 53 OR GREATER DUCTILE IRON PIPE. DI STORM PIPE SHALL BE PUSH ON JOINT WITH RUBBER GASKET.

10. PVC WATER MAIN PIPING SHALL CONFORM TO AWWA C900 IF APPROVED BY CITY OF MERIDEN WATER DEPARTMENT.

UTILITY CONSTRUCTION NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE LOCAL MUNICIPALITIES TO SECURE PERMITS AND FOR PAYMENT OF FEES FOR STREET CUTS AND CONNECTIONS TO EXISTING UTILITIES.

2. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TRAFFIC DEVICES FOR PROTECTION OF VEHICLES AND PEDESTRIANS CONSISTING OF DRUMS, BARRIERS, SIGNS, LIGHTS FENCES AND UNIFORMED TRAFFIC CONTROLLERS AS REQUIRED, ORDERED BY THE ENGINEER OR REQUIRED BY THE LOCAL GOVERNING AUTHORITIES.

3. THIS PLAN DETAILS PIPES UP TO 5' FROM THE BUILDING FACE. REFER TO DRAWINGS BY OTHERS FOR BUILDING CONNECTIONS. CONTRACTOR SHALL SUPPLY AND INSTALL PIPE ADAPTERS AS NECESSARY AT BUILDING CONNECTION POINT OR AT EXISTING UTILITY OR PIPE CONNECTION POINT.

4. THE CONTRACTOR SHALL VISIT THE SITE AND VERIFY THE ELEVATION AND LOCATION OF ALL UTILITIES BY VARIOUS MEANS PRIOR TO BEGINNING ANY EXCAVATION. TEST PITS SHALL BE DUG AT ALL LOCATIONS WHERE SEWERS CROSS–EXISTING UTILITIES, AND THE HORIZONTAL AND VERTICAL LOCATIONS OF THE UTILITIES SHALL BE DETERMINED. THE CONTRACTOR SHALL CONTACT THE SITE ENGINEER IN THE EVENT OF ANY DISCOVERED OR UNFORESEEN CONFLICTS BETWEEN EXISTING AND PROPOSED UTILITIES SO THAT AN APPROPRIATE MODIFICATION MAY BE MADE.

5. UTILITY CONNECTION DESIGN AS REFLECTED ON THE PLAN MAY CHANGE SUBJECT TO UTILITY CO. AND CITY STAFF REVIEW.

6. THE CONTRACTOR SHALL ENSURE THAT ALL UTILITY COMPANIES AND TOWN STANDARDS FOR MATERIALS AND CONSTRUCTION METHODS ARE MET. THE CONTRACTOR SHALL PERFORM PROPER COORDINATION WITH THE RESPECTIVE UTILITY COMPANY.

7. THE CONTRACTOR SHALL ARRANGE FOR AND COORDINATE WITH THE RESPECTIVE UTILITY COMPANIES FOR SERVICE INSTALLATIONS AND CONNECTIONS. THE CONTRACTOR SHALL COORDINATE WORK TO BE PERFORMED BY THE VARIOUS UTILITY COMPANIES AND SHALL PAY ALL FEES FOR CONNECTIONS, DISCONNECTION, RELOCATIONS, INSPECTIONS, AND DEMOLITION.

8. ALL EXISTING PAVEMENT WHERE UTILITY PIPING IS TO BE INSTALLED SHALL BE SAW CUT.

9. ALL PIPES SHALL BE LAID ON STRAIGHT ALIGNMENTS AND EVEN GRADES USING A PIPE LASER OR OTHER ACCURATE METHOD.

10. SANITARY LATERAL SHALL MAINTAIN (10' MIN. HORIZONTAL 1.5' VERTICAL MIN.) SEPARATION DISTANCE FROM WATER LINES, OR ADDITIONAL PROTECTION MEASURES WILL BE REQUIRED WHERE PERMITTED.

11. RELOCATION OF UTILITY COMPANY FACILITIES SUCH AS POLES, TO BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE FACILITY OWNERS.

12. THE CONTRACTOR SHALL COMPACT THE PIPE BACKFILL IN 8" LIFTS ACCORDING TO THE PIPE BEDDING DETAILS. TRENCH BOTTOM SHALL BE STABLE IN HIGH GROUNDWATER AREAS. A PIPE FOUNDATION SHALL BE USED IN AREAS OF ROCK EXCAVATION. STORM SEWERS MAY BE PLACED PRIOR TO PLACING FILL.

13. CONTRACTOR TO PROVIDE SLEEVES UNDER FOOTINGS FOR UTILITY CONNECTIONS.

14. UTILITY PENETRATIONS AND LOCATIONS ARE SHOWN FOR THE CONTRACTOR'S INFORMATION AND SHALL BE VERIFIED WITH THE MEP DRAWINGS AND CONSTRUCTION MANAGER.

15. ALL UTILITY CONSTRUCTION IS SUBJECT TO INSPECTION FOR APPROVAL PRIOR TO BACKFILLING, IN ACCORDANCE WITH THE APPROPRIATE UTILITY COMPANY AND/OR THE LOCAL MUNICIPALITIES' REQUIREMENTS.

16. A ONE–FOOT MINIMUM CLEARANCE BETWEEN WATER, GAS, ELECTRICAL, AND TELEPHONE LINES AND STORM SEWERS SHALL BE PROVIDED. A SIX–INCH MINIMUM CLEARANCE SHALL BE MAINTAINED BETWEEN STORM AND SANITARY SEWER WITH A CONCRETE ENCASEMENT.

17. CONTRACTOR SHALL PROVIDE ALL BENDS, FITTINGS, ADAPTERS, ETC., AS REQUIRED FOR PIPE CONNECTIONS TO BUILDING STUB OUTS, INCLUDING ROOF/FOOTING DRAIN CONNECTIONS TO ROOF LEADERS AND TO STORM DRAINAGE SYSTEM.

18. MANHOLE RIMS AND CATCH BASIN GRATES SHALL BE SET TO ELEVATIONS SHOWN. SET ALL EXISTING MANHOLE RIMS AND VALVE COVERS TO BE RAISED OR LOWERED FLUSH WITH FINAL GRADE AS NECESSARY.

GRADING AND UTILITIES NOTES CONT'D.

19. SITE CONTRACTOR SHALL COORDINATE INSTALLATION OF CONDUIT AND CABLES FOR SITE LIGHTING WITH THE BUILDING ELECTRICIAN.

20. CONTRACTOR SHALL COORDINATE INSTALLATION FOR ELECTRICAL SERVICES TO PYLON SIGNS AND SITE LIGHTING WITH THE BUILDING ELECTRICIAN.

21. THE CONTRACTOR SHALL RESTORE ANY UTILITY STRUCTURE, PIPE, UTILITY, PAVEMENT, CURBS, SIDEWALKS, OR LANDSCAPED AREAS DISTURBED DURING CONSTRUCTION, TO THEIR ORIGINAL CONDITION OR BETTER.

22. INFORMATION ON EXISTING UTILITIES AND STORM DRAINAGE HAS BEEN COMPILED FROM AVAILABLE INFORMATION INCLUDING UTILITY COMPANY AND MUNICIPAL RECORD MAPS AND/OR FIELD SURVEY AND IS NOT GUARANTEED CORRECT OR COMPLETE. UTILITIES AND STORM DRAINAGE ARE SHOWN TO ALERT THE CONTRACTOR TO THEIR PRESENCE. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ACTUAL LOCATIONS AND ELEVATIONS OF ALL UTILITIES AND STORM DRAINAGE INCLUDING SERVICES. CONTACT RICH KOBE OF WESTFIELD CORP AT 847–779–4811 72 HOURS PRIOR TO CONSTRUCTION AND VERIFY ALL UNDERGROUND AND OVERHEAD UTILITY AND STORM DRAINAGE LOCATIONS.

23. THE CONTRACTOR SHALL ARRANGE AND COORDINATE WITH UTILITY COMPANIES AND THE CITY OF MERIDEN FOR WORK TO BE PERFORMED BY UTILITY COMPANIES OR BY THE CITY OF MERIDEN. THE CONTRACTOR SHALL PAY ALL UTILITY FEES AND REPAIR PAVEMENTS AS NECESSARY.

24. ALL WATER LINES TO HAVE A MINIMUM COVER OF 4 FEET. ALL LINES SHALL BE BEDDED IN 6" SAND AND BACKFILLED WITH 12" SAND OR AS REQUIRED BY THE CITY OF MERIDEN WATER DEPARTMENT.ACTO

25. ALL WATER MAINS, WATER SERVICES AND SANITARY SEWER LATERAL SHALL CONFORM TO THE DEPARTMENT OF ENVIRONMENTAL PROTECTION, APPLICABLE COUNTY OR LOCAL WATER DEPARTMENT, OR THE APPROPRIATE LOCAL UTILITY COMPANY SPECIFICATIONS, AS WELL AS TO OTHER APPLICABLE CODES AND SPECIFICATIONS FOR POTABLE WATER SYSTEMS.

26. ALTERNATIVE METHODS AND PRODUCTS OTHER THAN THOSE SPECIFIED MAY BE USED IF REVIEWED AND APPROVED BY THE OWNER, ENGINEER, AND APPROPRIATE REGULATORY AGENCIES PRIOR TO INSTALLATION.

27. THE CONTRACTOR SHALL MAINTAIN ALL FLOWS AND UTILITY CONNECTIONS TO EXISTING BUILDING WITHOUT INTERRUPTION UNLESS/UNTIL AUTHORIZED TO DISCONNECT BY THE OWNERS, THE PROJECT ENGINEER, UTILITY COMPANIES AND GOVERNING AUTHORITIES.

28. THE CONTRACTOR MAY SUBSTITUTE MASONRY STRUCTURES FOR PRECAST STRUCTURES IF APPROVED BY THE SITE ENGINEER AND ALLOWED BY THE CITY ENGINEER OR GOVERNING AUTHORITY.

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REVISIONS

No.	Date	Desc.
1.	04/09/04	BID PACKAGE
2.	05/05/04	REVISED FOR CONDITIONS OF APPROVAL

Designed	J.J.S.
Drawn	C.A.F.
Checked	
Approved	
Scale	1"=30'
Project No.	04C750
Date	3/30/04
CAD File	SUC75001

Title

GRADING AND UTILITIES PLAN

Sheet No.

GU-1

Xref (s): BDC75001

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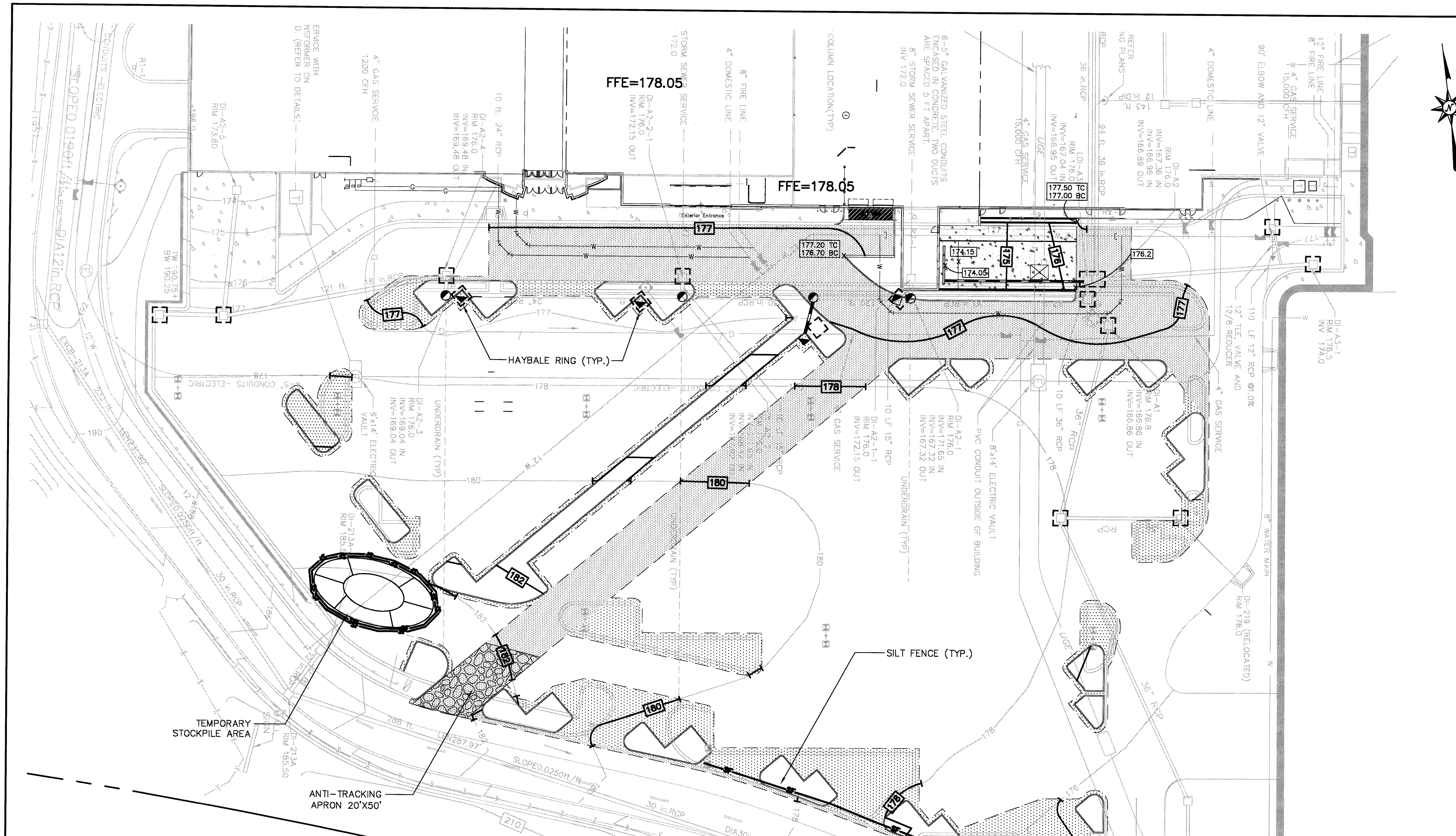

SEQUENCE FOR INSTALLATION OF SOIL EROSION & SEDIMENTATION CONTROL MEASURES

PHASE 1
1 ERECT SILTATION FENCES, SEDIMENT TRAP, DIVERSION DITCHES, AND ANTI–TRACKING PAD.

2. STRIP TOPSOIL AND STOCKPILE.

3. PERFORM CLEARING AND GRUBBING ACTIVITIES, AND DEMOLITION.

4. STABILIZE STOCK PILE.

PHASE 2
1. INSPECT AND MAINTAIN SEDIMENTATION AND EROSION CONTROL STRUCTURES.

2. ROUGH GRADING.

PHASE 3
1. INSPECT AND MAINTAIN SEDIMENTATION AND EROSION CONTROL STRUCTURES.

2. PERFORM FILLING ACTIVITIES,ZE

PHASE 4
1. INSPECT AND MAINTAIN SEDIMENTATION AND EROSION CONTROL STRUCTURES.

2. CONSTRUCT DRAINAGE STRUCTURES. CONSTRUCT DIVERSION BERMS, RIP RAPPED LINED DITCHES AND SEDIMENTATION BASINS. LEAVE TOPS OFF INLET C.B.'S TO COLLECT FLOW FROM DIVERSION BERMS. LEAVE OUTLET CONTROL ORIFICES CLOSED AT DETENTION POND OUTLET CONTROL STRUCTURE

3. INSTALL HAY BALES.

PHASE 5
1. INSPECT AND MAINTAIN SEDIMENTATION AND EROSION CONTROL STRUCTURES.

2. PERFORM FINAL GRADING AND PAVING.

PHASE 6
1. INSPECT AND MAINTAIN SEDIMENTATION AND EROSION CONTROL STRUCTURES.

2. RESPREAD TOPSOIL.

3. LIME, FERTILIZE, AND SEED.

4. MULCH.

5. FINAL COVER.

PHASE 7
1. MAINTAIN SILTATION FENCES UNTIL COVER IS COMPLETELY STABILIZED.

2. PERFORM FINAL INSPECTION.

3. REMOVE SILTATION FENCES, CLEAN, AND RESTORE ALL AREAS.

4. CLEAN ALL DEBRIS FROM DETENTION BASINS.

INSTALLATION OF SEDIMENTATION AND EROSION CONTROL MEASURES

I. SILTATION FENCE
A. DIG A SIX INCH TRENCH ON THE UPHILL SIDE OF THE DESIGNATED FENCE LINE LOCATION.

B. POSITION THE POST AT THE BACK OF THE TRENCH (DOWNHILL SIDE), AND HAMMER THE
POST AT LEAST 1.5 FEET INTO THE GROUND.

C. LAY THE BOTTOM SIX INCHES OF THE FABRIC INTO THE TRENCH TO PREVENT UNDERMINING BY STORM WATER RUN–OFF.

D. BACKFILL THE TRENCH AND COMPACT.

II. HAY BALES
A. BALES SHALL BE PLACED IN A SINGLE ROW, LENGTHWISE, ORIENTED PARALLEL TO THE CONTOUR, WITH ENDS OF ADJACENT BALES TIGHTLY ABUTTING ONE ANOTHER.

B. BALES SHALL BE ENTRENCHED AND BACKFILLED. A TRENCH SHALL BE EXCAVATED THE WIDTH OF A BALE AND THE LENGTH OF THE PROPOSED BARRIER TO A MINIMUM DEPTH OF FOUR INCHES. AFTER THE BALES ARE STAKED, THE EXCAVATED SOIL SHALL BE BACKFILLED AGAINST THE BARRIER.

C. EACH BALE SHALL BE SECURELY ANCHORED BY AT LEAST TWO (2) STAKES.

D. THE GAPS BETWEEN BALES SHALL BE WEDGED WITH STRAW TO PREVENT WATER LEAKAGE.

E. THE BARRIER SHALL BE EXTENDED TO SUCH A LENGTH THAT THE BOTTOMS OF THE END BALES ARE HIGHER IN ELEVATION THAN THE TOP OF THE LOWEST MIDDLE BALE, TO ENSURE THAT RUN–OFF WILL FLOW EITHER THROUGH OR OVER THE BARRIER, BUT NOT AROUND IT.

EROSION CONTROL NOTES

SEDIMENT & EROSION CONTROL NARRATIVE

THE SEDIMENT AND EROSION CONTROL PLAN WAS DEVELOPED TO PROTECT THE EXISTING ROADWAY AND STORM DRAINAGE SYSTEMS, ADJACENT PROPERTIES, AND THE WETLAND AREA FROM SURFACE RUNOFF AND EROSION. A CONSTRUCTION SEQUENCE IS PROVIDED TO PROVIDE SURFACE RUNOFF CONTROLS PRIOR TO THE PROJECT CONSTRUCTION BEGINNING.

CONSTRUCTION SCHEDULE

THE ANTICIPATED STARTING DATE FOR CONSTRUCTION IS SPRING 2004 WITH COMPLETION ANTICIPATED FALL 2004. APPROPRIATE EROSION CONTROL MEASURES AS DESCRIBED HEREIN, SHALL BE INSTALLED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF ALL CONSTRUCTION ACTIVITY.

CONTINGENCY EROSION PLAN

THE CONTRACTOR SHALL INSTALL ALL SPECIFIED EROSION CONTROL MEASURES AND WILL BE REQUIRED TO MAINTAIN THEM IN THEIR INTENDED FUNCTIONING CONDITION. THE AGENTS OF THE DIRECTOR OF PUBLIC WORKS, INLAND WETLANDS AGENCY AND/OR SITE ENGINEER SHALL HAVE THE AUTHORITY TO REQUIRE SUPPLEMENTAL MAINTENANCE OR ADDITIONAL MEASURES IF FIELD CONDITIONS ARE ENCOUNTERED BEYOND WHAT WOULD NORMALLY BE ANTICIPATED.

CONSTRUCTION SEQUENCE

THE FOLLOWING CONSTRUCTION SEQUENCE IS RECOMMENDED:

1. CONTACT CITY OF MERIDEN AGENT AT LEAST FORTY–EIGHT (48) HOURS PRIOR TO COMMENCEMENT OF ANY DEMOLITION, CONSTRUCTION OR REGULATED ACTIVITY ON THIS PROJECT.

2. CLEARING LIMITS SHALL BE PHYSICALLY MARKED IN THE FIELD AND APPROVED BY THE TOWN OF AGENT PRIOR TO THE START OF WORK ON THE SITE. INSTALL TREE PROTECTION AND PERIMETER SILT FENCE.

3. CONSTRUCT TRACKING PADS AT ENTRANCES AND WRAP FILTER FABRIC AROUND GRATES OF CATCH BASINS OR INSTALL SILT SACKS ON CATCH BASIN INLETS ON OFF SITE ROADS. INSTALL HAY BALES AND SILT FENCE AT PERIMETER OF PROPOSED SITE DISTURBANCE AND INSTALL ALL EROSION CONTROL MEASURES AND TREE PROTECTION INDICATED ON THESE PLANS. INSTALL SEDIMENT BASINS IF REQUIRED AT LOW AREAS OF SITE OR AS ORDERED BY THE ENGINEER OR AS SHOWN ON THESE PLANS.

4. CLEAR AND GRUB SITE. STOCKPILE CHIPS. STOCKPILE TOPSOIL

5. BUILDING AND SITE DEMOLITION AND REMOVAL. PAVEMENT REMOVAL

6. INSTALL SILT FENCE, INSTALL STORM DRAINAGE.

7. CONTINUE EARTHWORK. CONSTRUCT LOADING DOCK AND RETAINING WALLS. INSTALL ADDITIONAL EROSION CONTROLS AND CONSTRUCT STORM SEWER, TOPSOIL AND SEED SLOPES WHICH HAVE ACHIEVED FINAL SITE GRADING.

8. CONSTRUCTION STAKING OF ALL BUILDING CORNERS, UTILITIES, ACCESS DRIVES, AND PARKING AREAS.

9. ROUGH GRADING

10. INSTALLATION OF STORM DRAINAGE.

11. FOUNDATION CONSTRUCTION. BEGIN SUPERSTRUCTURE

12. REMOVE SEDIMENT FROM BEHIND SILT FENCES AND HAY BALES, AND FROM CATCH BASINS AS REQUIRED. REMOVAL SHALL BE ON A PERIODIC BASIS (EVERY SIGNIFICANT RAINFALL). INSPECTION OF EROSION CONTROL MEASURES SHALL BE ON A WEEKLY BASIS. SEDIMENT COLLECTED SHALL BE DEPOSITED AND SPREAD EVENLY UPLAND ON SLOPES DURING CONSTRUCTION.

13. INSTALL UTILITIES. COMPLETE STORM SEWERS.

14. INSTALL SITE LIGHTING AND LOADING DOCK.

15. FINISH GRADING AND CONSTRUCT PARKING AREA SUBGRADE.

16. CONSTRUCT CURBS, PAVEMENT STRUCTURE AND SIDEWALKS

17. PAVING OF PARKING AREAS AND DRIVEWAYS

18. FINAL GRADING OF SLOPE AREAS.

19. PLACE 4" TOPSOIL ON SLOPES AFTER FINAL GRADING IS COMPLETED. FERTILIZE SEED AND MULCH. SEED MIXTURE TO BE INSTALLED APRIL 11, – JUNE 1 OR AUGUST 15–OCTOBER 1 USE EROSION CONTROL BLANKETS AS REQUIRED OR ORDERED FOR SLOPES GREATER THAN 3:1. FOR TEMPORARY STABILIZATION BEYOND SEEDING DATES USE ANNUAL RYE AT 4.0 LBS/1,000 S.F. FERTILIZE WITH 10–10–10 AT 1.0 LBS. OF NITROGEN PER 1,000 S.F. AND LIME AT 100 LBS/1,000 S.F. (MAX.).

20. LANDSCAPE ISLANDS AND PERIMETER AREAS.

21. INSTALL SIGNING AND PAVEMENT MARKINGS

22. UPON DIRECTION OF THE CITY OF MERIDEN AGENT, EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED FOLLOWING STABILIZATION OF THE SITE.

SEQUENCE OF OPERATIONS

OPERATION I – CLEARING AND GRUBBING

1. ALL SEDIMENTATION AND EROSION CONTROL MEASURES, INCLUDING THE CONSTRUCTION OF ANTI–TRACKING PADS, WILL BE INSTALLED PRIOR TO THE START OF CLEARING AND GRUBBING AND DEMOLITION OPERATIONS.

2. FOLLOWING INSTALLATION OF ALL SEDIMENTATION AND EROSION CONTROL MEASURES, THE CONTRACTOR SHALL NOT PROCEED WITH OPERATION II UNTIL THE ENGINEER HAS INSPECTED AND APPROVED ALL INSTALLATIONS.

3. THE CONTRACTOR SHALL TAKE EXTREME CARE DURING OPERATION I SO AS NOT TO DISTURB UNPROTECTED WETLAND AREAS OR SEDIMENTATION AND EROSION CONTROL STRUCTURES.

4. FOLLOWING THE COMPLETION OF OPERATION I, ALL AREAS SHALL BE STABILIZED WITH TOPSOIL AND SEEDING OR PROCESSED AGGREGATE AS SOON AS PRACTICAL.

OPERATION II – ROUGH GRADING

1. DURING THE REMOVAL AND/OR PLACEMENT OF EARTH AS INDICATED ON THE SITE PLAN, TOPSOIL SHALL BE STRIPPED AND APPROPRIATELY STOCKPILED FOR REUSE.

2. ALL STOCKPILED TOPSOIL SHALL BE SEEDED, MULCHED WITH HAY, AND ENCLOSED BY A SILTATION FENCE.

OPERATION III – FILLING

1. PRIOR TO FILLING, ALL SEDIMENTATION AND EROSION CONTROL STRUCTURES SHALL BE PROPERLY IMPLEMENTED, MAINTAINED AND FULLY INSTALLED, AS DIRECTED BY THE ENGINEER AND AS SHOWN ON THIS PLAN.

OPERATION IV – PLACEMENT OF DRAINAGE STRUCTURES, UTILITIES, AND BUILDING CONSTRUCTION.

1. STAKED HAY BALES OR SILT FENCES SHALL BE INSTALLED AT THE DOWNHILL SIDES OF BUILDING EXCAVATIONS, MUD PUMP DISCHARGES, AND UTILITY TRENCH MATERIAL STOCKPILES.

OPERATION V – FINAL GRADING AND PAVING

1. ALL INLET AND OUTLET PROTECTION SHALL BE PLACED AND MAINTAINED AS DISCUSSED IN OPERATION IV.

2. NO CUT OR FILL SLOPES SHALL EXCEED 2:1 EXCEPT WHERE STABILIZED BY ROCK FACED EMBANKMENTS OR EROSION CONTROL BLANKETS, JUTE MESH AND VEGETATION. ALL SLOPES SHALL BE SEEDED, AND THE ROAD SHOULDER AND BANKS WILL BE STABILIZED IMMEDIATELY UPON COMPLETION OF FINAL GRADING UNTIL TURF IS ESTABLISHED.

3. PAVEMENT BASE COURSES SHALL BE INSTALLED OVER AREAS TO BE PAVED AS SOON AS FINAL SUB–GRADES ARE ESTABLISHED AND UNDERGROUND UTILITIES HAVE BEEN INSTALLED.

4. CONSTRUCT PAVEMENT, PLACE TOPSOIL, FINAL SEED, MULCH AND LANDSCAPING.

5. REMOVE ALL TEMPORARY EROSION CONTROL DEVICES ONLY AFTER ALL AREAS HAVE BEEN PAVED AND/OR GRASS HAS BEEN WELL ESTABLISHED AND THE SITE HAS BEEN INSPECTED AND APPROVED BY THE CITY OR GOVERNING WETLAND AGENCY.

SITE UTILITY LEGEND

TEMPORARY STOCKPILE WITH DOUBLE ROW OF SILT FENCE

SILT FENCE —SF—

HAYBALES AROUND CATCH BASIN

ANTI–TRACKING PAD ▨

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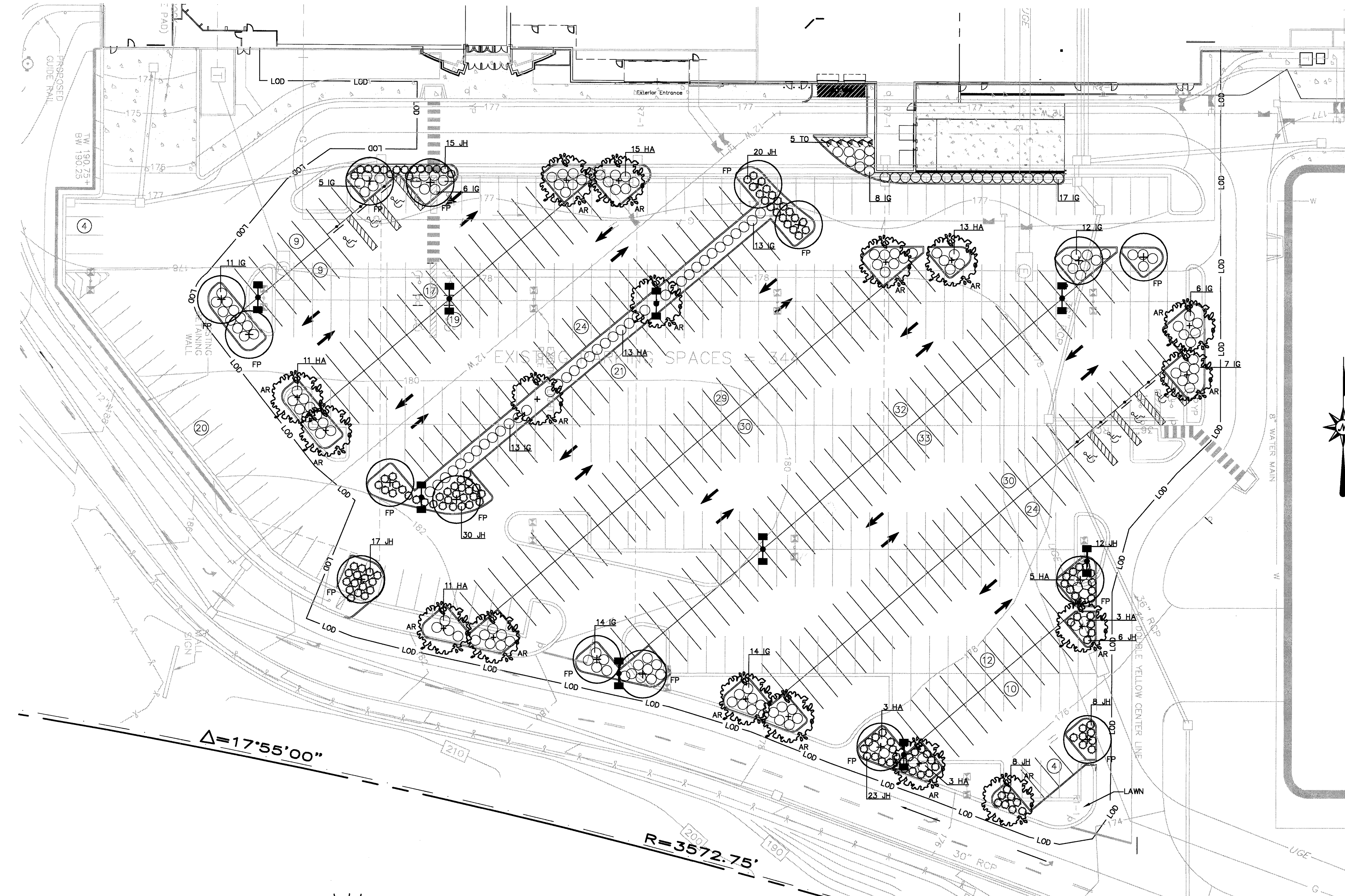
1.	04/09/04	BID PACKAGE
2.	05/05/04	REVISED FOR CONDITIONS OF APPROVAL

Designed	J.J.S.
Drawn	J.J.S.
Checked	
Approved	
Scale	1"=30'
Project No.	04C750
Date	3/30/04
CAD File	ECC75001

Title
SEDIMENTATION AND EROSION CONTROL PLAN

Sheet No.
EC-1



LANDSCAPE NOTES

1. THE LANDSCAPE PLAN AND DETAIL SHEET ARE FOR LANDSCAPING INFORMATION ONLY. PLEASE REFER TO THE SITE LAYOUT PLAN, LIGHTING PLAN, GRADING PLAN AND UTILITIES PLAN FOR ALL OTHER INFORMATION.

2. THE CONTRACTOR SHALL GUARANTEE THAT ALL PLANTS, TREES, AND SHRUBS SHALL BE HEALTHY AND FREE OF DISEASE FOR A PERIOD OF ONE YEAR AFTER SUBSTANTIAL COMPLETION AND ACCEPTANCE BY OWNER OR LANDSCAPE ARCHITECT. CONTRACTOR SHALL REPLACE ANY DEAD OR UNHEALTHY PLANTS AT CONTRACTOR'S EXPENSE. PLANT MATERIAL REPLACEMENTS SHALL BE GUARANTEED FOR ONE FULL YEAR FROM DATE OF REPLACEMENT. FINAL ACCEPTANCE SHALL BE MADE IF ALL PLANTS MEET THE GUARANTEE REQUIREMENTS INCLUDING MAINTENANCE. MAINTENANCE RESPONSIBILITIES INCLUDE CULTIVATING, SPRAYING, WEEDING, WATERING, TIGHTENING GUYS, PRUNING, FERTILIZING, MULCHING, AND ANY OTHER OPERATIONS NECESSARY TO MAINTAIN PLANT VIABILITY. MAINTENANCE SHALL BEGIN IMMEDIATELY AFTER PLANTING AND CONTINUE UNTIL THE END OF THE ONE YEAR GUARANTEE PERIOD.

3. THE CONTRACTOR SHALL SUPPLY ALL LABOR, PLANTS, AND MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE THE WORK SHOWN ON THE DRAWINGS AND LISTED IN THE PLANT SCHEDULE. IN THE EVENT OF A DISCREPANCY BETWEEN QUANTITIES SHOWN IN THE PLANT SCHEDULE AND THOSE REQUIRED BY THE DRAWINGS, THE LARGER SHALL APPLY. ALL PLANTS SHALL BE ACCLIMATED BY THE SUPPLY NURSERY TO THE LOCAL HARDINESS ZONE AND BE CERTIFIED THAT THE PLANTING MATERIAL HAS BEEN GROWN FOR A MINIMUM OF TWO YEARS AT THE SOURCE AND OBTAINED WITHIN 200 MILES OF PROJECT SITE UNLESS OTHERWISE APPROVED BY OWNER OR LANDSCAPE ARCHITECT.

4. THE LOCATIONS FOR PLANT MATERIAL ARE APPROXIMATE AND ARE SUBJECT TO FIELD ADJUSTMENT DUE TO SLOPE, VEGETATION, AND SITE FACTORS SUCH AS THE LOCATION OF ROCK OUTCROPS. PRIOR TO PLANTING THE CONTRACTOR SHALL ACCURATELY STAKE OUT THE LOCATIONS FOR ALL PLANTS. THE OWNER OR LANDSCAPE ARCHITECT SHALL APPROVE THE FIELD LOCATIONS OR ADJUSTMENTS OF THE PLANT MATERIAL.

5. ALL SHRUB MASSINGS SHALL BE MULCHED TO A DEPTH OF 3". ANNUAL AND PERENNIAL BEDS SHALL BE MULCHED TO A DEPTH OF 2". SHREDDED HARDWOOD BARK MULCH SHALL BE SPREAD OVER GEOTEXTILE FABRIC EQUAL TO MARAFI MODEL 140 NL FOR SHRUB MASSING AREAS, ANNUAL AND PERENNIAL FLOWER BEDS. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. GROUND COVER AREAS SHALL NOT HAVE FABRIC.

6. NO PLANT SHALL BE PLACED IN THE GROUND BEFORE ROUGH GRADING HAS BEEN COMPLETED AND APPROVED BY LANDSCAPE CONTRACTOR. STAKING THE LOCATION OF ALL TREES AND SHRUBS SHALL BE COMPLETED PRIOR TO PLANTING FOR APPROVAL BY THE OWNER OR LANDSCAPE ARCHITECT.

7. COORDINATE PLANT MATERIAL LOCATIONS WITH SITE UTILITIES. SEE SITE LAYOUT, GRADING AND UTILITY FOR STORM, SANITARY AND WATER LINES. SEE LIGHTING PLAN FOR ELECTRICAL AND LIGHTING LAYOUT AND DETAILS. UTILITY LOCATIONS ARE APPROXIMATE. EXERCISE CARE WHEN DIGGING IN AREAS OF POTENTIAL CONFLICT WITH UNDERGROUND OR OVERHEAD UTILTIES. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE DUE TO CONTRACTOR'S NEGLIGENCE AND SHALL REPLACE OR REPAIR ANY DAMAGE AT CONTRACTOR'S EXPENSE.

8. LANDSCAPE PLANTING PITS MUST BE FREE DRAINING. PAVEMENT, COMPACTED SUBGRADE, AND BLASTED ROCK SHALL BE REMOVED FROM WITHIN ISLANDS TO BE LANDSCAPED TO A DEPTH OF 2' OR TO A GREATER DEPTH IF REQUIRED BY PLANTING DETAILS OR SPECIFICATIONS. REPLACE SOIL WITHIN ISLANDS WITH MODERATELY COMPACTED LOAM OR SANDY LOAM FREE FROM STONES AND RUBBISH 1" OR GREATER IN DIAMETER AND ANY OTHER MATERIAL HARMFUL TO PLANT GROWTH AND DEVELOPMENT. PLANTING INSTALLATION WITHIN ISLANDS SHALL BE AS DETAILED AND CONTAIN PLANTING MIX AS SPECIFIED.

9. PLANTING SOIL MIXTURE:
   2 PARTS PEAT MOSS
   5 PARTS TOPSOIL
   MYCORHIZA INOCULANT – "TRANSPLANT 1-STEP" AS MANUFACTURED BY ROOTS, INC. OR
   APPROVED EQUAL. USE PER MANUFACTURER'S RECOMMENDATIONS FOR TREES AND SHRUBS.
   FERTILIZER/LIME APPLY AS RECOMMENDED BY SOIL ANAYLSIS

10. TREES, AND SHRUBS:
TREES AND SHRUBS SHALL BE NURSERY GROWN UNLESS OTHERWISE NOTED AND HARDY UNDER CLIMATIC CONDITIONS SIMILAR TO THOSE IN THE LOCATION OF THE PROJECT. THEY SHALL BE TYPICAL OF THEIR SPECIES OR VARIETY, WITH NORMAL HABIT OF GROWTH. THEY SHALL BE SOUND, HEALTHY, VIGOROUS, WELL-BRANCHED AND DENSELY FOLIATED WHEN IN LEAF. THEY SHALL BE FREE OF DISEASE, INSECT PESTS, EGGS OR LARVAE.THEY SHALL HAVE HEALTHY AND WELL-DEVELOPED ROOT SYSTEMS. ALL TREES SHALL HAVE STRAIGHT SINGLE TRUNKS WITH THEIR MAIN LEADER INTACT UNLESS OTHERWISE STATED. THE OWNER OR LANDSCAPE ARCHITECT SHALL ONLY PERMIT SUBSTITUTIONS UPON WRITTEN APPROVAL. THEIR SIZES SHALL CONFORM TO THE MEASUREMENT SPECIFIED ON THE DRAWINGS. PLANTS LARGER THAN SPECIFIED ON THE DRAWINGS MAY BE USED IF APPROVED. THE USE OF SUCH PLANTS SHALL NOT INCREASE THE CONTRACT PRICE.

ALL OVERSTORY TREES PLANTED ALONG PARKING AREAS, SIDEWALKS AND PEDESTRIAN ACCESSES SHALL HAVE SINGLE STRAIGHT TRUNKS AND SHALL NOT BRANCH BELOW 7' FEET HIGH IF THE TREE CALIPER IS 2 1/2" INCHES OR GREATER.

11. ANNUALS, PERENNIALS, AND GROUNDCOVERS:
ALL PLANT MATERIALS ARE SUBJECT TO INSPECTION AND ACCEPTANCE BY THE OWNER OR LANDSCAPE ARCHITECT AT THE NURSERY SOURCE OR PLACE OF GROWTH. THE CONTRACTOR SHALL COORDINATE WITH THE LANDSCAPE ARCHITECT ON A SCHEDULE FOR SOURCE VISITS AND ACCOMPANY THE OWNER OR LANDSCAPE ARCHITECT FOR ALL SOURCE INSPECTIONS. CERTIFICATES OF COMPLIANCE IS REQUIRED FOR ALL PLANT MATERIALS.

12. SEEDING MIXTURES:
 A. LAWN SEEDING MIXTURE – LOFTS SEED COMPANY OR APPROVED EQUAL
    10% KENTUCKY BLUEGRASS (POA PRATENSIS)
    10% PERENNIAL RYEGRASS (LOLIUM PERENNE)
    80% BLEND OF THREE TALL FESCUES (FESTUCA ARUNDINACEA)
    SEEDING RATE: 4.5 LBS PER 1,000 S.F. (ADD 10% TO QUANTITY IF HYDROSEEDED).
    SEEDING DATES: AUGUST 15 – OCTOBER 1 AND APRIL 15 – JUNE 15 UNLESS OTHERWISE
    APPROVED BY THE OWNER OR LANDSCAPE ARCHITECT.

13. ALL SLOPES GREATER THAN 3:1 RECEIVING A GRASS SEEDING MIXTURE SHALL BE COVERED WITH AN EROSION CONTROL BLANKET.

14. TOPSOIL SHALL BE INSTALLED AT A MINIMUM DEPTH OF 4". CONTRACTOR SHALL SUBMIT TOPSOIL TO A CERTIFIED TESTING LABORATORY TO DETERMINE pH, FERTILITY, ORGANIC CONTENT AND MECHANICAL COMPOSITION. THE CONTRACTOR SHALL SUBMIT THE TEST RESULTS FROM REGIONAL EXTENSION OFFICE OF USDA TO THE OWNER OR LANDSCAPE ARCHITECT FOR REVIEW AND APPROVAL. CONTRACTOR SHALL INCORPORATE AMENDMENTS FOR GOOD PLANT GROWTH AND PROPER SOIL ACIDITY RECOMMENDED FROM THE TOPSOIL TEST.

15. UNLESS OTHERWISE NOTED IN DRAWING SET, NEW TREELINES SHALL EQUAL CLEARING AND GRUBBING LIMIT FOR CONSTRUCTION.

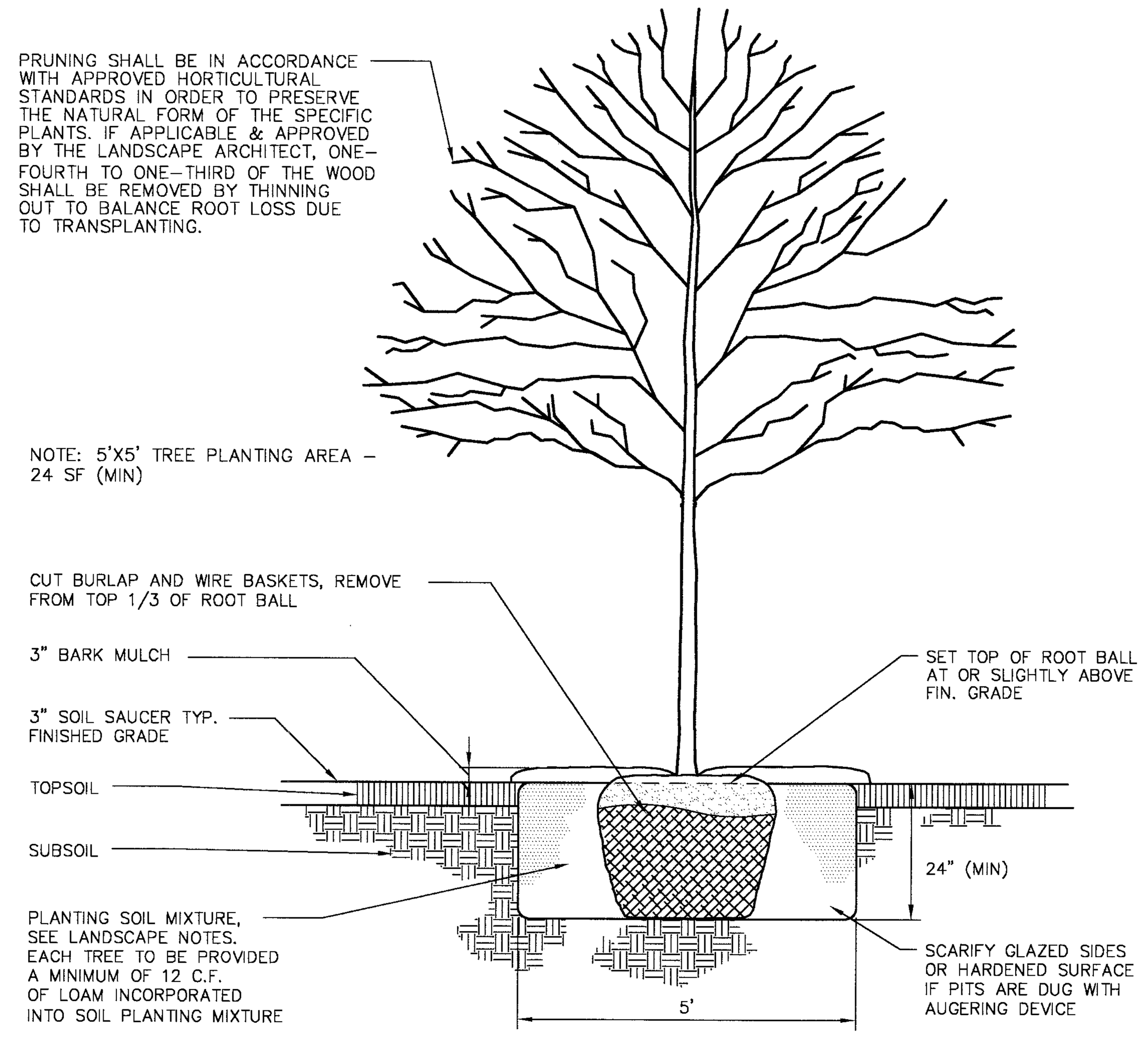
16. ALL DISTURBED AREAS NOT OTHERWISE DEVELOPED SHALL BE SEEDED WITH THE LAWN SEEDING MIXTURE.

17. IF SHEET IS LESS THAN 24" X 36" IT IS A REDUCED PRINT AND SHOULD BE SCALED ACCORDINGLY.

LANDSCAPE SCHEDULE

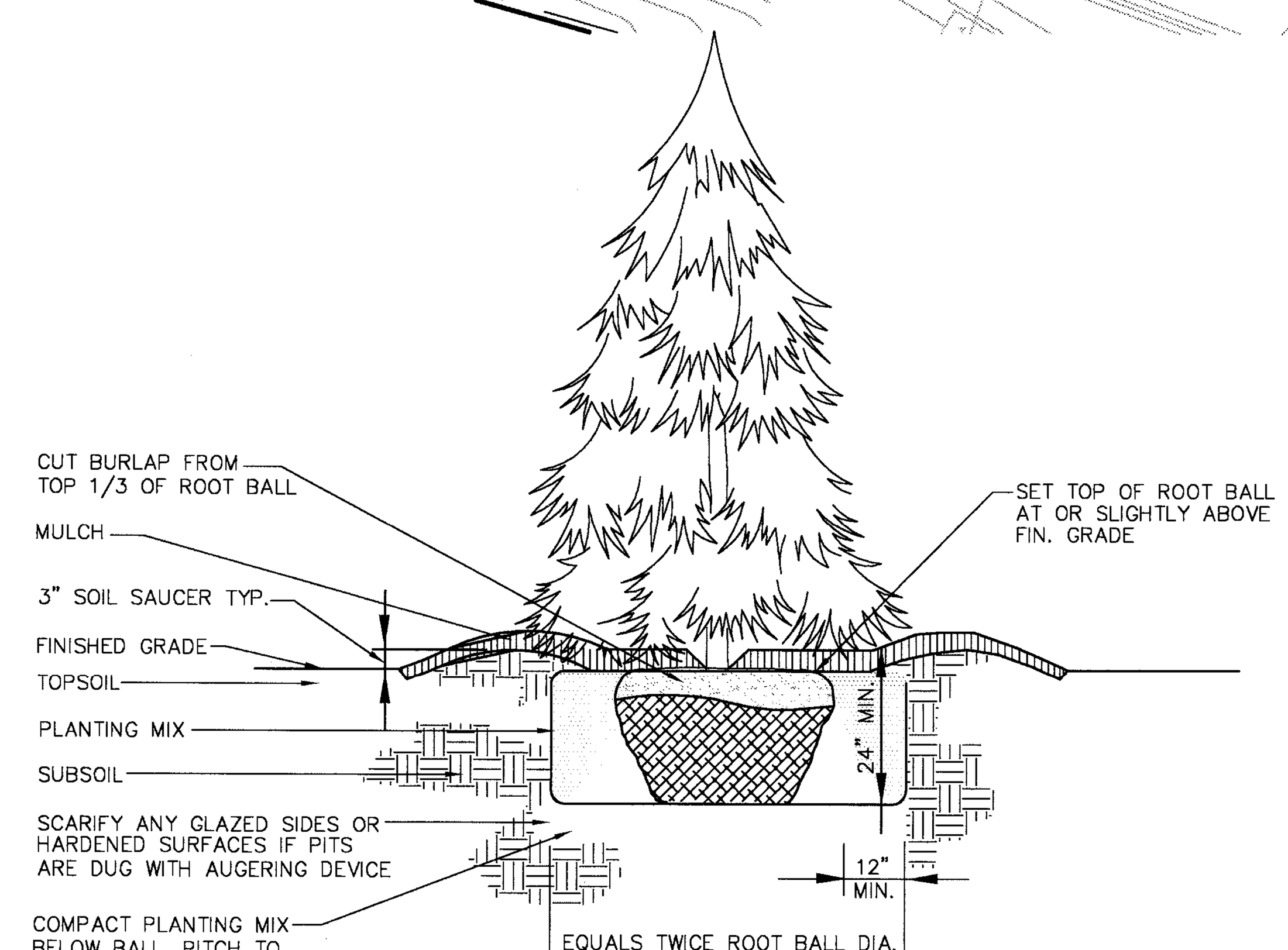
TREES AND SHRUBS

KEY	QUANTITY	BOTANICAL NAME	COMMON NAME	ROOT	SIZE	NOTES
AR	17	ACER RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE	B&B	3"-3 1/2" CAL.	MIN. 7' BRANCHING HT.
FP	16	FRAXINUS PENNSYLVANICA 'SUMMIT'	SUMMIT GREEN ASH	B&B	2 1/2"-3" CAL.	MIN. 7' BRANCHING HT.
HA	77	HYDRANGEA ARBORESCENS 'ANNABELLE'	ANNABELLE HYDRANGEA	#5 CONT.	24"-36" HT.	WELL DEVELOPED
IG	124	ILEX GLABRA 'COMPACTA'	COMPACT INKBERRY	#3 CONT.	24" HT. MIN.	WELL DEVELOPED
JH	138	JUNIPERUS HORIZONTALIS	CREEPING JUNIPER	#2 CONT.	18" SPREAD	WELL DEVELOPED
TO	5	THUJA OCCIDENTALIS 'NIGRA'	DARK GREEN ARBORVITAE	B&B	5' HT. MIN.	WELL DEVELOPED



TREE PLANTING

N.T.S. BLLD-009



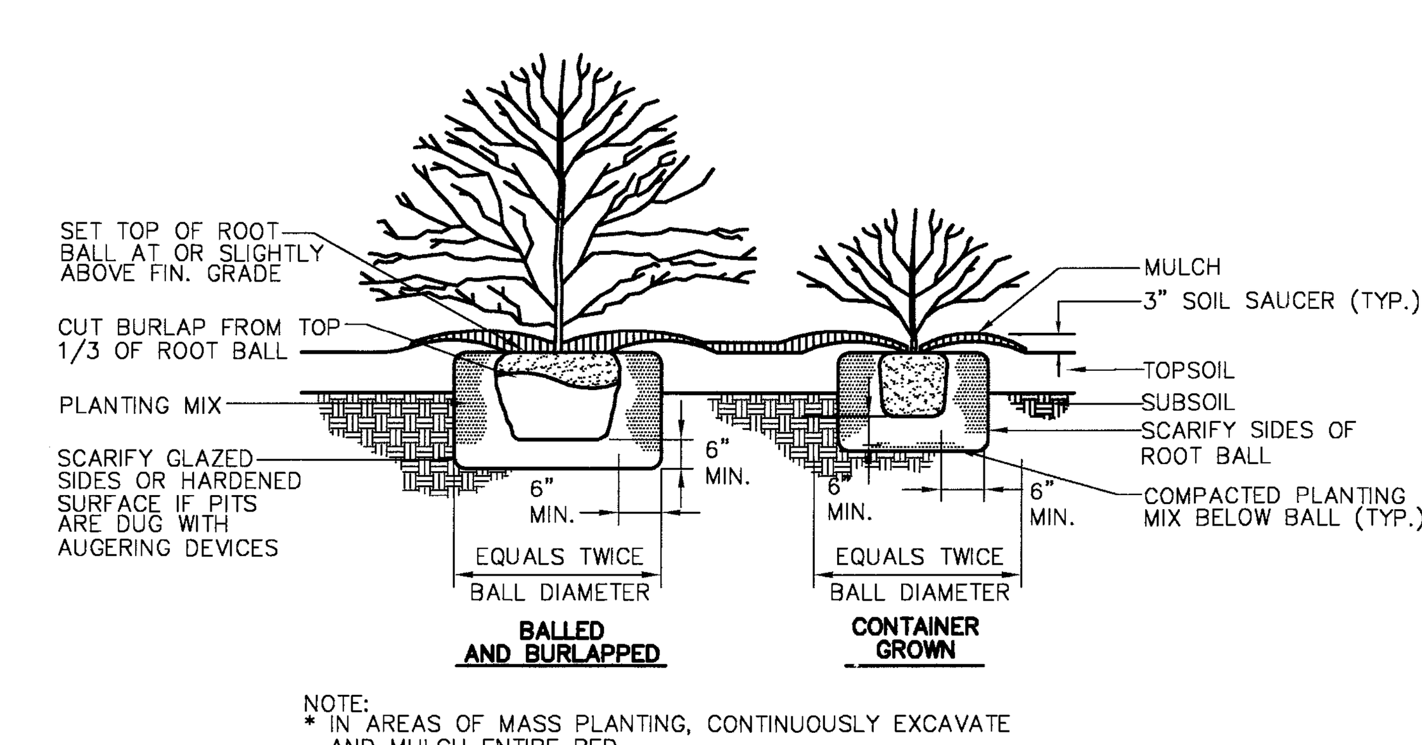
STAKING
STAKING FOR EVERGREEN TREES OVER 6' HT.

GUYING
GUYING FOR EVERGREEN TREES OVER 10' HT.

NOTE: SHOULD STAKING OR GUYING BE REQUIRED SEE DECIDUOUS TREE PLANTING DETAIL FOR METHODS.

EVERGREEN TREE PLANTING WITHOUT GUY WIRES

N.T.S. BLLD-010



NOTE:
* IN AREAS OF MASS PLANTING, CONTINUOUSLY EXCAVATE AND MULCH ENTIRE BED.

SHRUB PLANTING

N.T.S. BLLD-005

GRAPHIC SCALE
30 15 0 30
SCALE IN FEET

MAY 0 5 2004
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REVISIONS

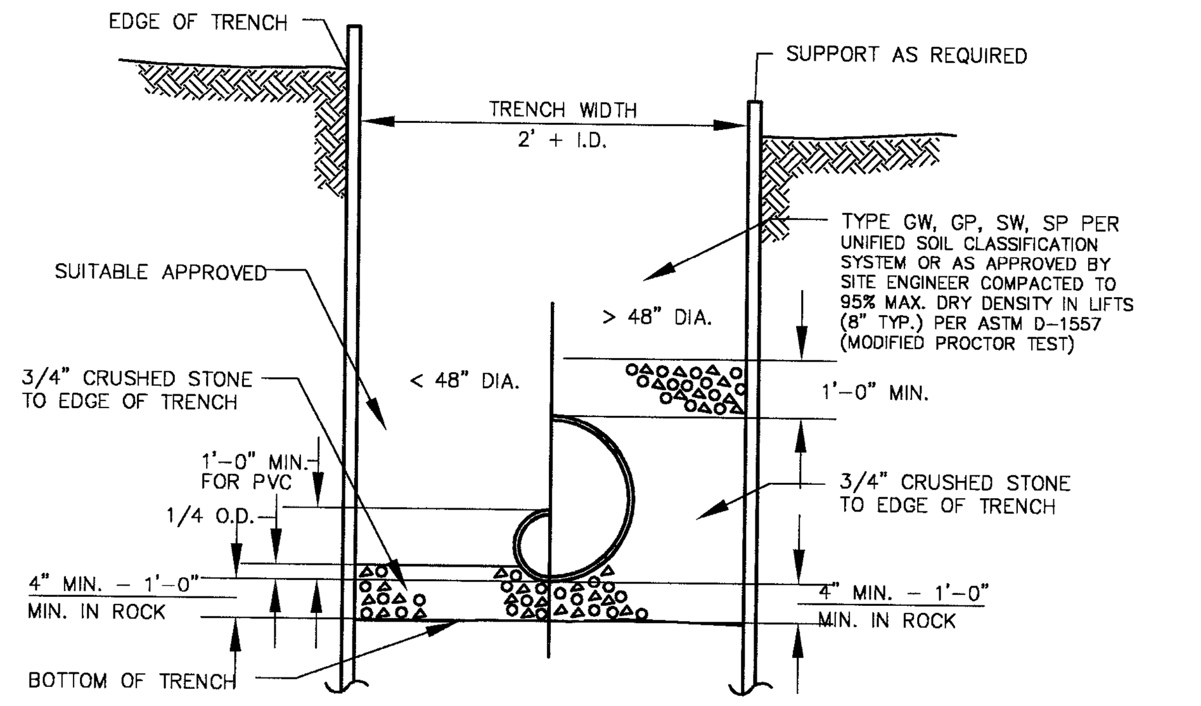
No.	Date	Desc.
1.	04/09/04	BID PACKAGE
2.	05/05/04	REVISED FOR CONDITIONS OF APPROVAL

Designed	K.T.
Drawn	K.T.
Checked	
Approved	
Scale	1"=30'
Project No.	04C750
Date	3/30/04
CAD File	LLC75001

Title
LANDSCAPE PLAN

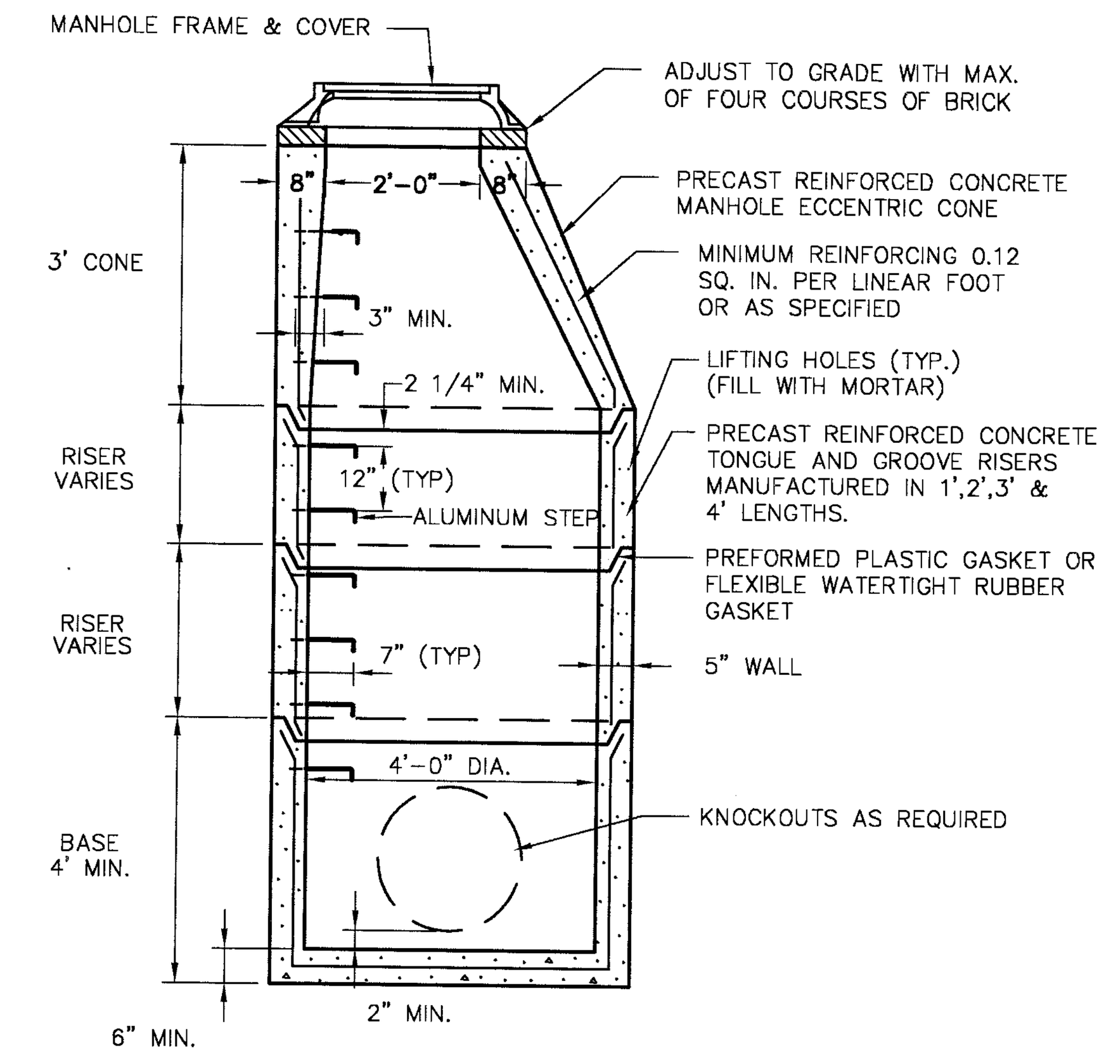
Sheet No.
LL-1

Xref (s): BDC75001,



TYPICAL STORM SEWER TRENCH SECTION

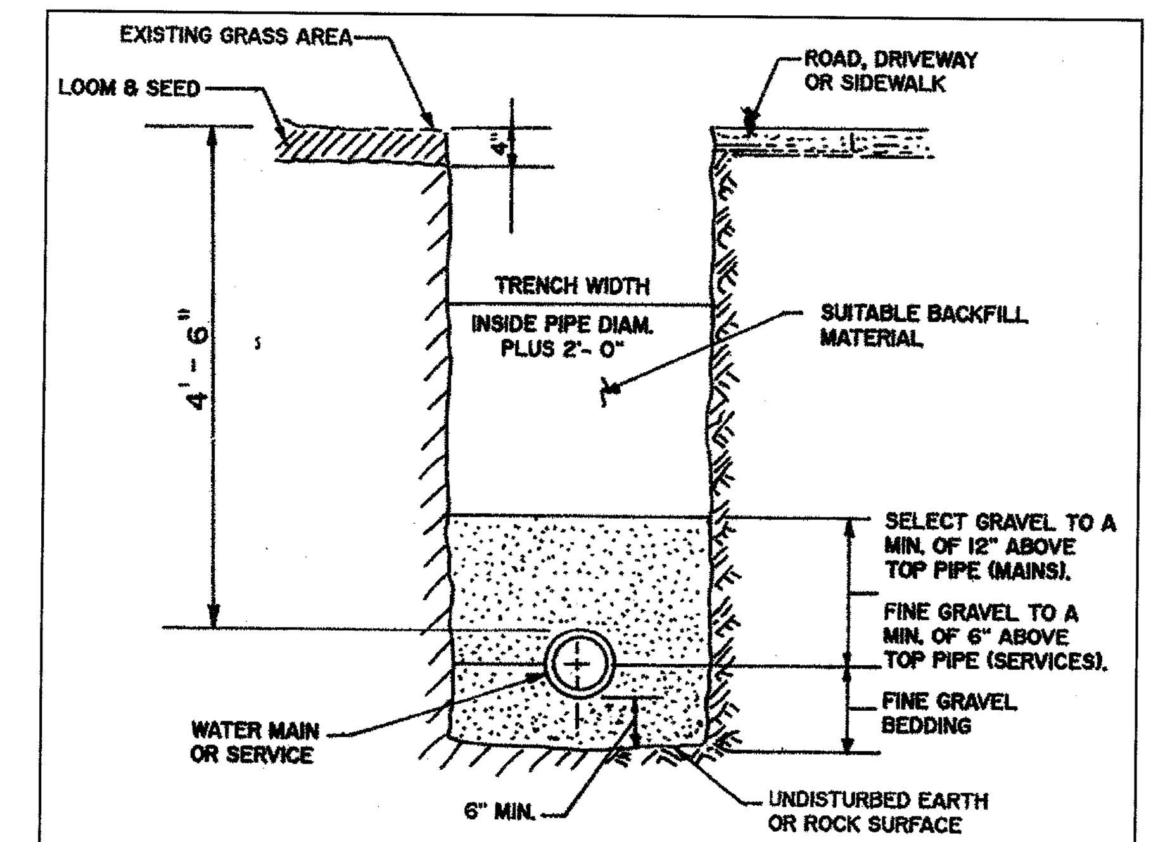
N.T.S. BLDD-004



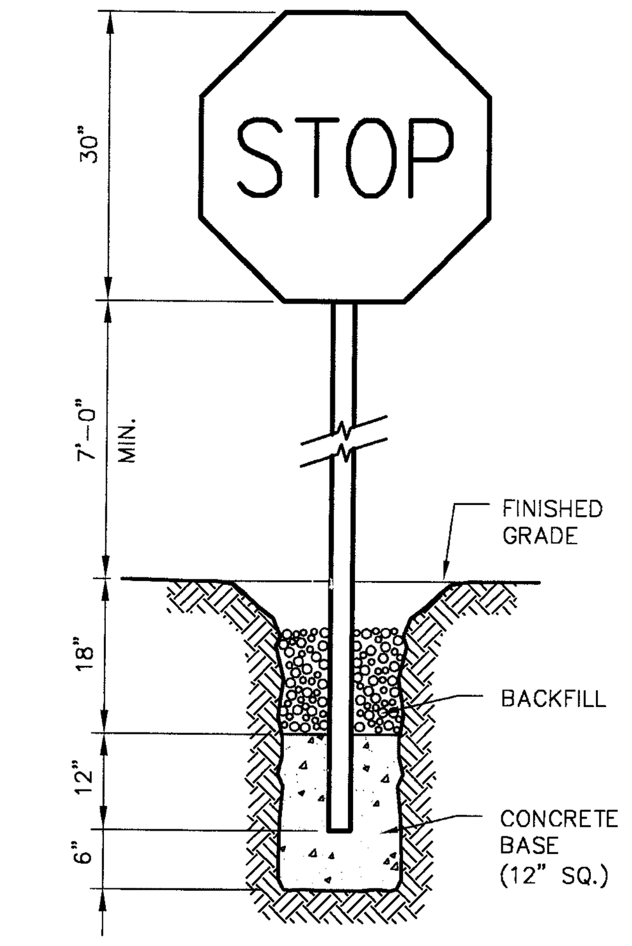
5' OR 6' DIA. PRECAST BASES MAY BE USED WHEN REQUIRED DUE TO SIZE OR NUMBER OF PIPES AT THE MANHOLE. PRECAST REDUCERS WILL BE PLACED ABOVE THE 5' & 6' BASES AS DIRECTED BY THE ENGINEER. WALL THICKNESS TO INCREASE 1" FOR EACH 1' OF INSIDE DIAMETER INCREASE.

PRECAST STORM MANHOLE DETAIL

N.T.S. CTDD-003



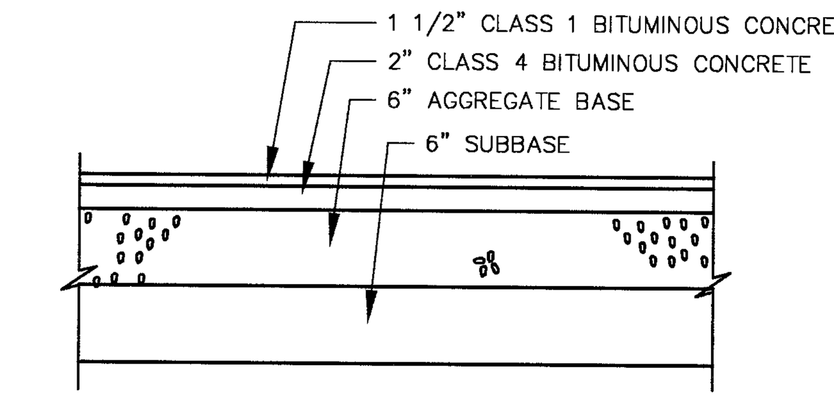
TYPICAL TRENCH SECTION



NOTE:
CONSTRUCT SIGN IN ACCORDANCE WITH DOT SPECIFICATIONS.

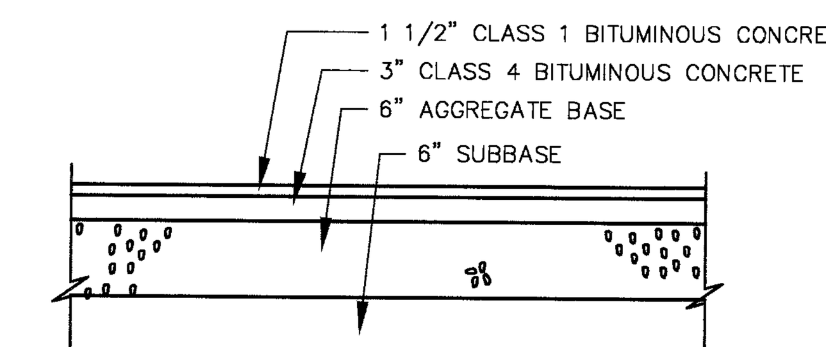
STOP SIGN

N.T.S. BLSD-002



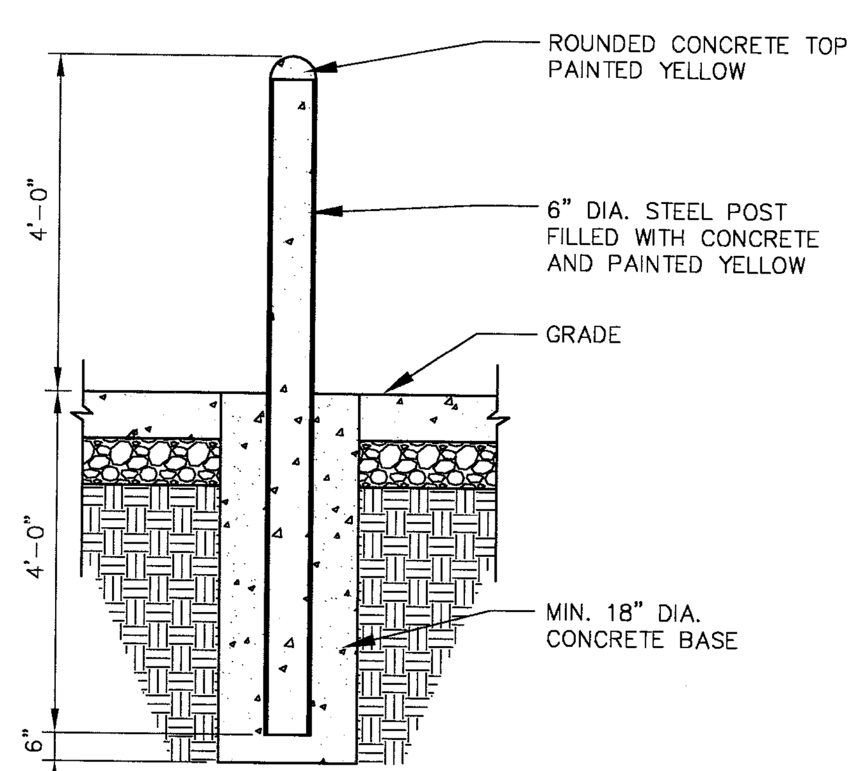
STANDARD DUTY BITUMINOUS CONCRETE PAVEMENT ON SITE

N.T.S. CTPC-006



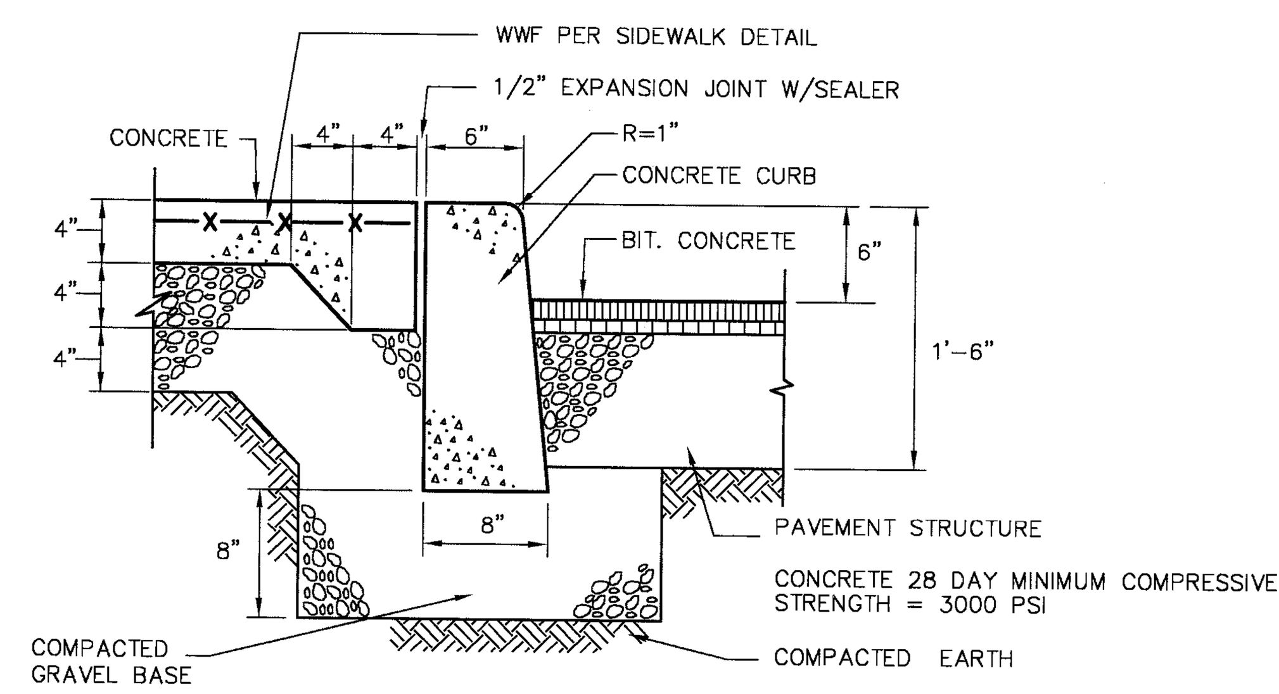
HEAVY DUTY BITUMINOUS CONCRETE PAVEMENT ON SITE

N.T.S. CTPC-006



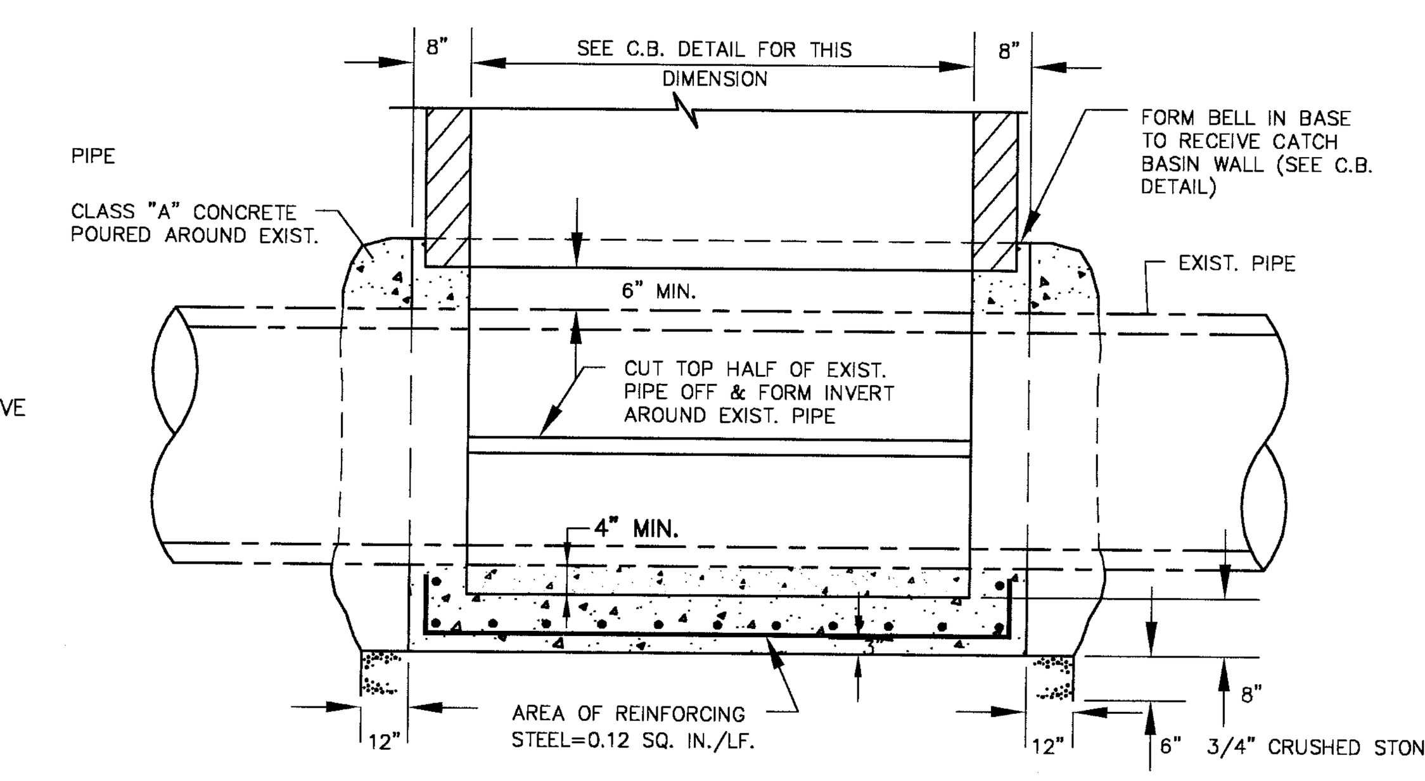
PROTECTIVE POST (BOLLARD) DETAIL

N.T.S. BLSE-005



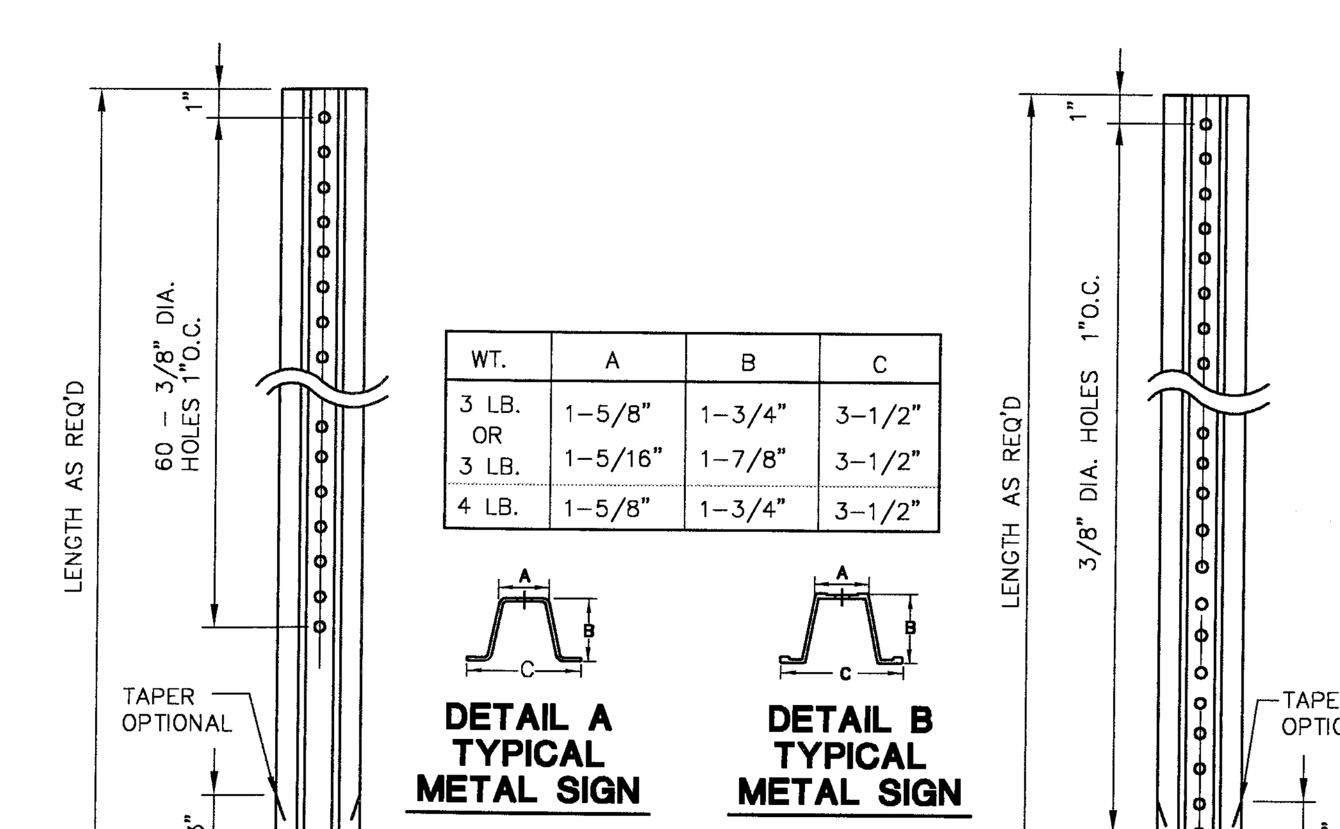
CONCRETE CURB AND WALK DETAIL

N.T.S. CTPC-007



NEW CATCH BASIN OVER EXISTING STORM PIPE

N.T.S. CTDD-006



WT.	A	B	C
3 LB. OR	1-5/8"	1-3/4"	3-1/2"
3 LB.	1-5/16"	1-7/8"	3-1/2"
4 LB.	1-5/8"	1-3/4"	3-1/2"

DETAIL A HOLE LOCATION

DETAIL B HOLE LOCATION

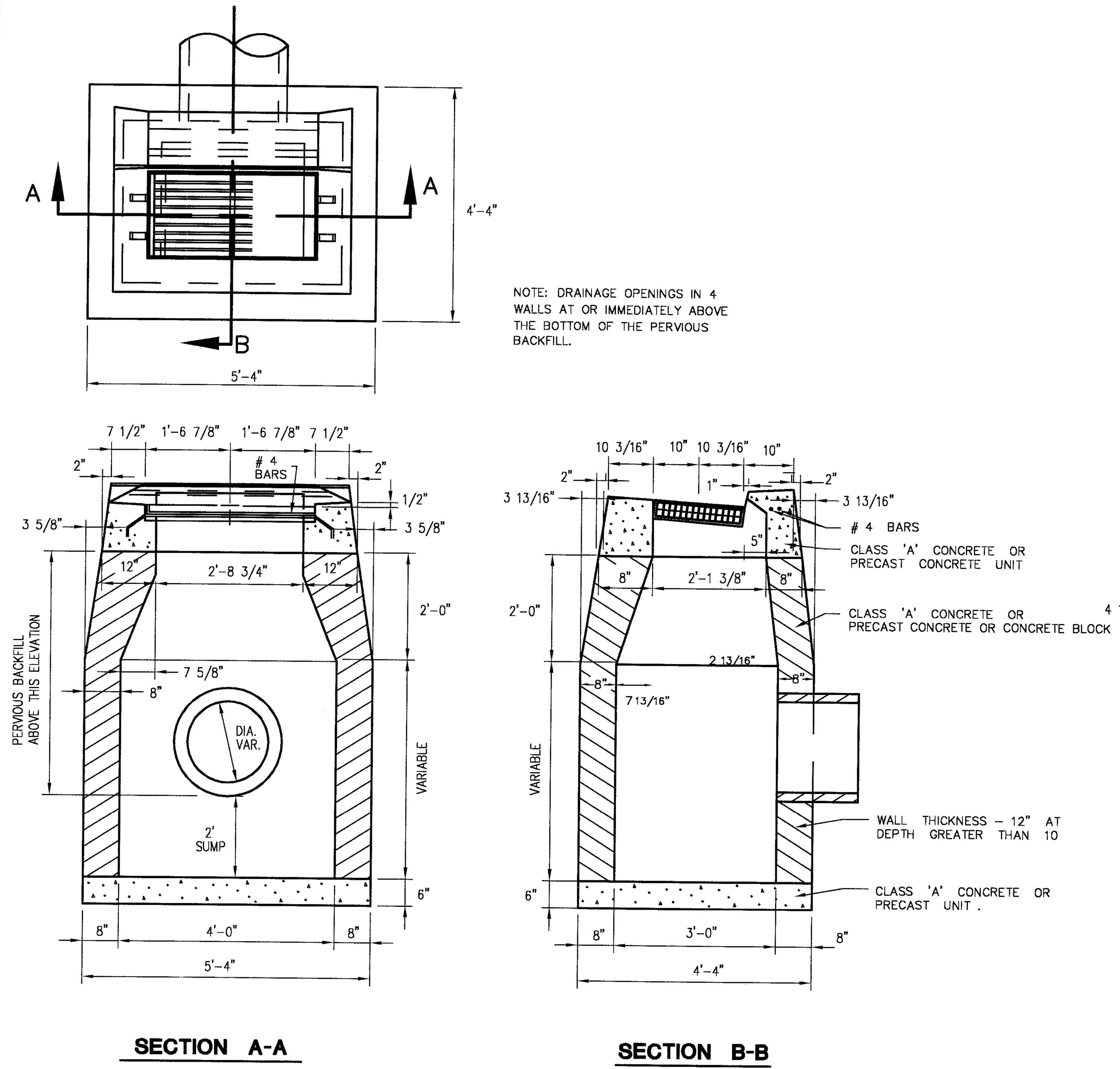
NOTES:
STEEL FOR POSTS SHALL CONFORM TO THE MECHANICAL REQUIREMENTS OF ASTM A 499-81 GRADE 60 AND TO THE CHEMICAL REQUIREMENTS OF ASTM AI-76 CARBON STEEL TEE RAIL HAVING NOMINAL WEIGHT OF "91 LBS OR GREATER PER LINEAR YARD.

AFTER FABRICATION ALL STEEL POSTS SHALL BE GALVANIZED TO MEET THE REQUIREMENTS OF ASTM A-123.

SIGN MOUNTING HEIGHT TO BE APPROVED BY THE ENGINEER.

TYPICAL METAL SIGN POSTS

N.T.S. BLSD-001

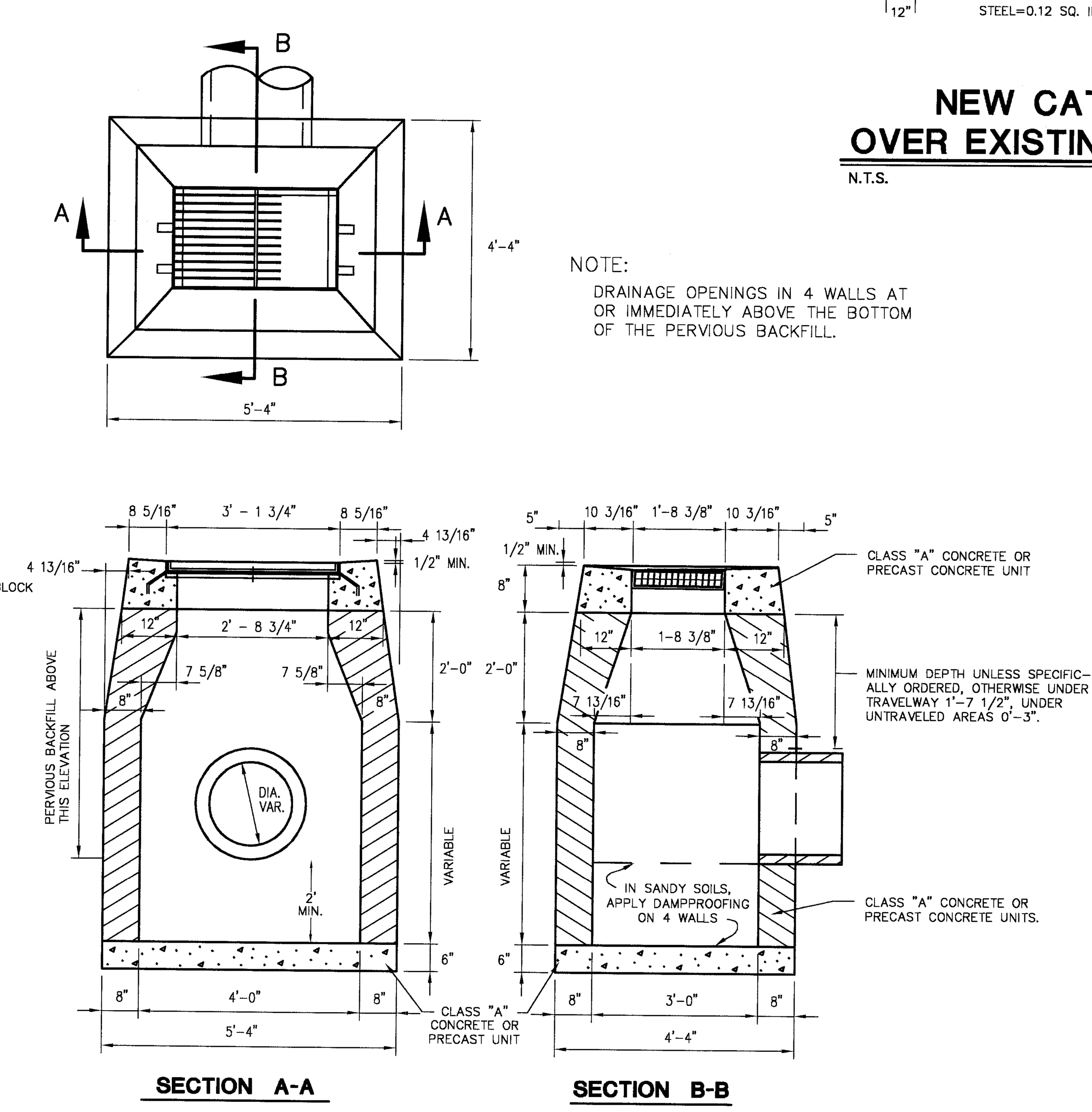


NOTE: DRAINAGE OPENINGS IN 4 WALLS AT OR IMMEDIATELY ABOVE THE BOTTOM OF THE PERVIOUS BACKFILL.

CONNECTICUT DEPARTMENT OF TRANSPORTAION

TYPE "C" CATCH BASIN

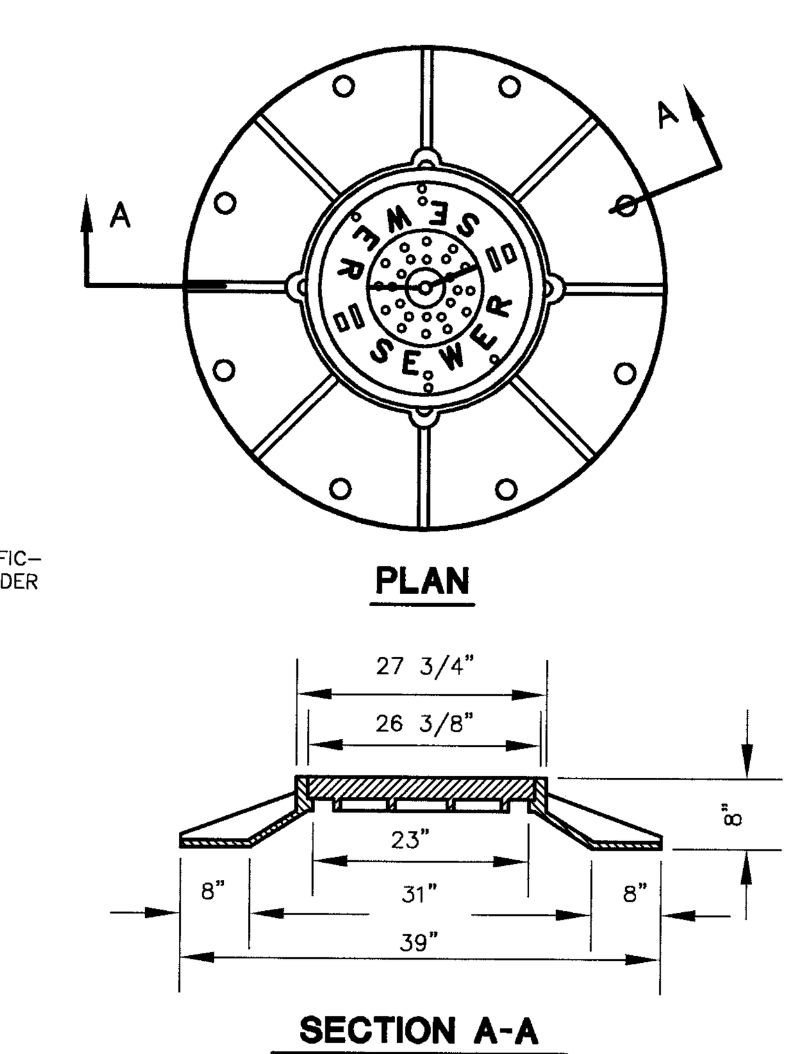
N.T.S. CTDD-001



NOTE:
DRAINAGE OPENINGS IN 4 WALLS AT OR IMMEDIATELY ABOVE THE BOTTOM OF THE PERVIOUS BACKFILL.

TYPE "C-L" CATCH BASIN

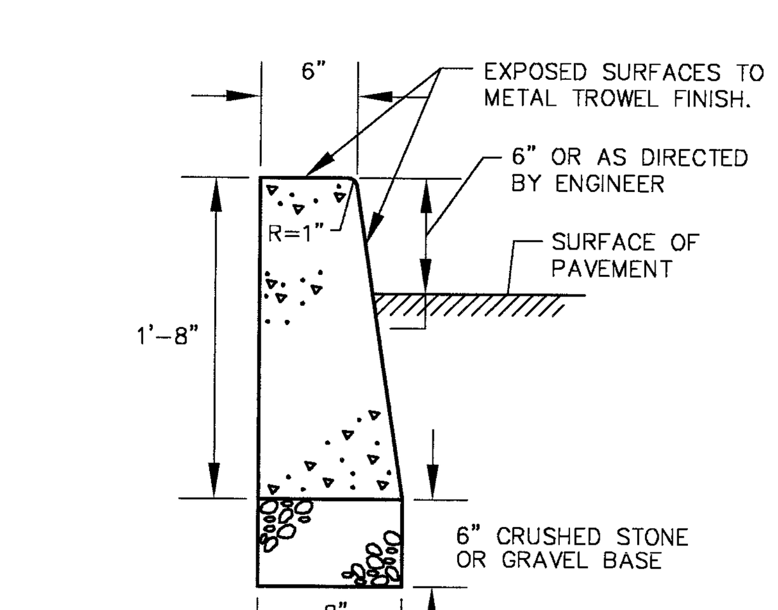
N.T.S. CTDD-002



NOTE:
FRAME & GRATE TO BE LEBARON FOUNDRY LJ-116 OR APPROVED EQUAL.

STANDARD MANHOLE FRAME AND COVER

N.T.S BLSS-002



NOTES:
1. CONSTRUCTION JOINTS SHALL BE SPACED APPROXIMATELY EVERY 10 FEET BUT NOT LESS THAN 6 FEET. 1/4" THICK PREFORMED EXPANSION JOINT FILLER SHALL BE INSTALLED EVERY OTHER JOINT. AND AT INTERSECTION OF CONCRETE SIDEWALK AND CURB.

2. FORMWORK SHALL REMAIN INPLACE FOR 24 HOURS FOLLOWING CONCRETE POURING.

FULL-DEPTH CONCRETE CURB DETAIL

N.T.S. CTPC-004

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Xref (s): BDC75001,

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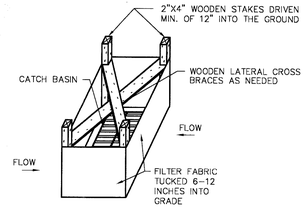
REVISIONS

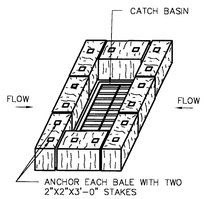
No.	Date	Desc.
1.	04/09/04	BID PACKAGE
2.	05/05/04	REVISED FOR CONDITIONS OF APPROVAL

Designed	J.J.S.
Drawn	J.J.S.
Checked	
Approved	
Scale	1"=30'
Project No.	04C750
Date	3/30/04
CAD File	DNC75001

Title
DETAIL SHEET

Sheet No.
DN-1





SILT FENCE INSTALLATION AT CATCH BASINS AT LOW POINTS

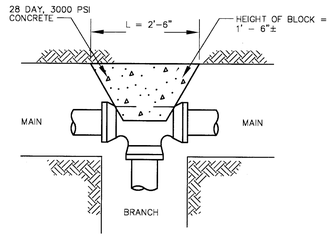
HAY BALE FILTER INSTALLATION AT CATCH BASIN AT LOW POINTS

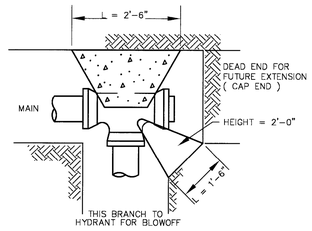
STORMWATER INLETS WHICH DO NOT DISCHARGE TO SEDIMENT TRAPS OR BASINS, MUST BE PROTECTED UNTIL THE TRIBUTARY AREAS ARE STABILIZED.

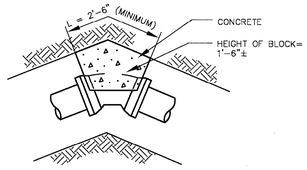
SEDIMENT MUST BE REMOVED FROM INLET PROTECTION AFTER EACH STORM EVENT.

CATCH BASIN EROSION CONTROL

N.T.S. BLEC-012

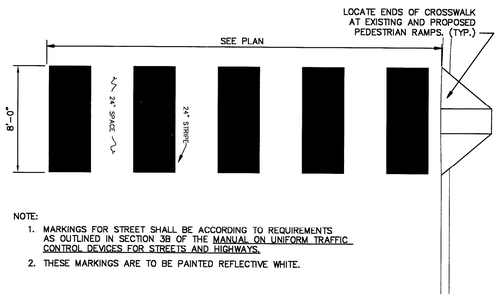






THRUST BLOCKS FOR WATER LINES

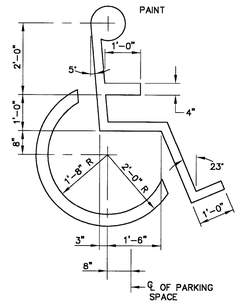
N.T.S. BLWD-001



NOTE:
1. MARKINGS FOR STREET SHALL BE ACCORDING TO REQUIREMENTS AS OUTLINED IN SECTION 38 OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS.
2. THESE MARKINGS ARE TO BE PAINTED REFLECTIVE WHITE.

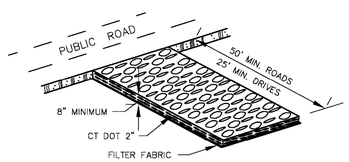
CROSSWALK MARKINGS

N.T.S.



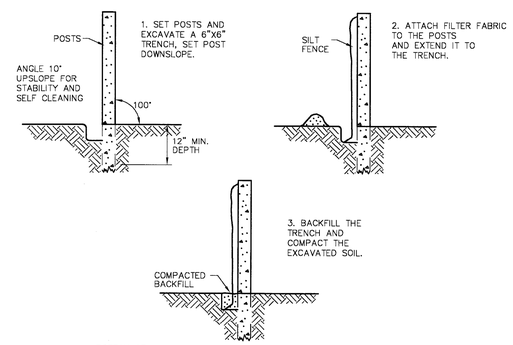
INTERNATIONAL HANDICAP SYMBOL

N.T.S.



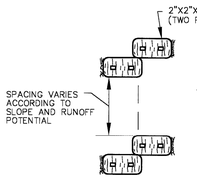
ANTI-TRACKING PAD

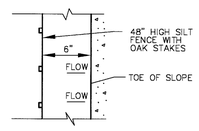
N.T.S. CTEC-001

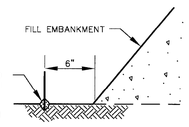


SILT FENCE BARRIER

N.T.S. CTEC-003

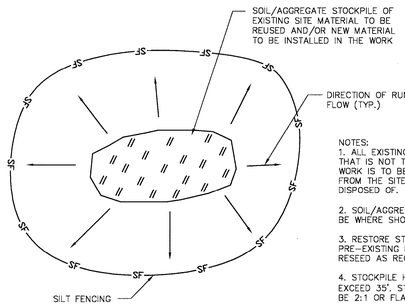






EROSION PROTECTION DEVICES

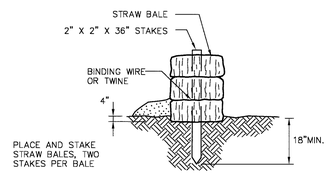
N.T.S. CTEC-002



NOTES:
1. ALL EXISTING EXCAVATED MATERIAL THAT IS NOT TO BE REUSED IN THE WORK IS TO BE IMMEDIATELY REMOVED FROM THE SITE AND PROPERLY DISPOSED OF.
2. SOIL/AGGREGATE STOCKPILE SITES TO BE WHERE SHOWN ON THE DRAWINGS.
3. RESTORE STOCKPILE SITES TO PRE-EXISTING PROJECT CONDITION AND RESEED AS REQUIRED.
4. STOCKPILE HEIGHTS MUST NOT EXCEED 35'. STOCKPILE SLOPES MUST BE 2:1 OR FLATTER.

MATERIALS STOCKPILE DETAIL

N.T.S. BLEC-006



STRAW BALE BARRIERS SHOULD NOT BE USED FOR MORE THAN 3 MONTHS

SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH 1/3 THE ABOVE GROUND HEIGHT OF THE BARRIER.

ANY SECTION OF STRAW BALE BARRIER WHICH HAS BEEN UNDERMINED OR TOPPED MUST BE IMMEDIATELY REPLACED WITH A ROCK FILTER OUTLET.

STRAW BALE DETAIL

N.T.S. BLEC-007

EROSION CONTROL NOTES

OPERATION AND MAINTENANCE OF SEDIMENTATION AND EROSION CONTROL MEASURES

I. SILTATION FENCE
A. ALL SILTATION FENCES SHALL BE INSPECTED AS A MINIMUM WEEKLY OR AFTER EACH RAINFALL. ALL DETERIORATED FABRIC AND DAMAGED POSTS SHALL BE REPLACED AND PROPERLY REPOSITIONED IN ACCORDANCE WITH THIS PLAN.

B. SEDIMENT DEPOSITS SHALL BE REMOVED FROM BEHIND THE FENCE WHEN THEY EXCEED A HEIGHT OF ONE FOOT.

II. HAY BALES
A. ALL HAY BALE RINGS SHALL BE INSPECTED FOLLOWING EACH RAINFALL. REPAIR OR REPLACEMENT SHALL BE PROMPTLY MADE AS NEEDED.

B. DEPOSITS SHALL BE REMOVED AND CLEANED-OUT IF ONE HALF OF THE ORIGINAL HEIGHT OF THE BALES BECOMES FILLED WITH SEDIMENT.

III. SEDIMENT BASINS
A. CONTRACTOR TO KEEP WEEKLY CHECKLIST LOGS FOR INSPECTIONS OF ALL SEDIMENT AND EROSION CONTROL DEVICES AND HAVE THEM READILY AVAILABLE ON-SITE AT ALL TIMES FOR INSPECTION BY DEP, LOCAL AUTHORITIES OR ENGINEER.

B. ALL PONDS SHALL BE INSPECTED FOLLOWING EACH RAINFALL. REPAIR OF SLOPES SHALL BE PROMPTLY MADE AS NEEDED.

C. SEDIMENT DEPOSITS SHALL BE REMOVED FROM PONDS WHEN THEY EXCEED A HEIGHT OF ONE FOOT.

D. SEDIMENT SHALL BE DISPOSED OF ON-SITE OR AS DIRECTED BY THE ENGINEER AND LOCAL GOVERNING OFFICIALS.

EROSION AND SEDIMENT CONTROL PLAN

1. HAY BALE FILTERS OR SILTATION FENCE WILL BE INSTALLED AT ALL CULVERT OUTLETS AND ALONG THE TOE OF ALL CRITICAL CUT AND FILL SLOPES.

2. CULVERT DISCHARGE AREAS WILL BE PROTECTED WITH RIP RAP CHANNELS; ENERGY DISSIPATORS WILL BE INSTALLED AS NECESSARY.LLIN

3. CATCH BASINS WILL BE PROTECTED WITH HAY BALE FILTERS, SILT SACKS OR SILTATION FENCE THOUGHOUT THE CONSTRUCTION PERIOD AND UNTIL ALL DISTURBED AREAS ARE THOROUGHLY STABILIZED.
HES

4. ALL EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE EROSION AND SEDIMENT CONTROL HANDBOOK LATEST EDITION.

5. EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED PRIOR TO CONSTRUCTION WHENEVER POSSIBLE

6. ALL CONTROL MEASURES WILL BE MAINTAINED IN EFFECTIVE CONDITION THROUGHOUT THE CONSTRUCTION PERIOD.

7. ADDITIONAL CONTROL MEASURES WILL BE INSTALLED DURING THE CONSTRUCTION PERIOD, IF NECESSARY OR REQUIRED.

8. SEDIMENT REMOVED FROM CONTROL STRUCTURES WILL BE DISPOSED IN A MANNER WHICH IS CONSISTENT WITH THE INTENT OF THE PLAN.

9. TONY KING OF WESTFIELD IS ASSIGNED THE RESPONSIBILITY FOR IMPLEMENTING THIS EROSION AND SEDIMENT CONTROL PLAN. THIS RESPONSIBILITY INCLUDES THE INSTALLATION AND MAINTENANCE OF CONTROL MEASURES, INFORMING ALL PARTIES ENGAGED ON THE CONSTRUCTION SITE OF THE REQUIREMENTS AND OBJECTIVES OF THE PLAN, NOTIFICATION OF THE CITY OF MERIDEN PLAN COMMISSION OFFICE OR GOVERNING AUTHORITY OF ANY TRANSFER OF THIS RESPONSIBILITY AND FOR CONVEYING A COPY OF THE EROSION AND SEDIMENT CONTROL PLAN IF THE TITLE TO THE LAND IS TRANSFERRED.

EROSION AND SEDIMENT CONTROL PLAN SEDIMENT AND EROSION CONTROL NOTES

1. THE DRAWING IS ONLY INTENDED TO DESCRIBE THE SEDIMENT AND EROSION CONTROL TREATMENT FOR THIS SITE. SEE SEDIMENT AND EROSION CONTROL DETAILS AND CONSTRUCTION SEQUENCE. REFER TO SITE PLAN FOR GENERAL INFORMATION AND OTHER PLANS FOR APPROPRIATE INFORMATION.

2. TONY KING OF WESTFIELD CORP. IS RESPONSIBLE FOR IMPLEMENTING THIS SEDIMENT AND EROSION CONTROL PLAN, AND CAN BE REACHED AT (310) 445-2432. THIS RESPONSIBILITY INCLUDES THE PROPER INSTALLATION AND MAINTENANCE OF CONTROL MEASURES, INFORMING ALL PARTIES ENGAGED WITH CONSTRUCTION ON THE SITE OF THE REQUIREMENTS AND OBJECTIVES OF THIS PLAN, INFORMING THE GOVERNING AUTHORITY OR INLAND WETLANDS AGENCY OF ANY TRANSFER OF THIS RESPONSIBILITY, AND FOR CONVEYING A COPY OF THE SEDIMENT & EROSION CONTROL PLAN IF THE TITLE TO THE LAND IS TRANSFERRED.

3. A BOND IN THE AMOUNT OF TO BE DETERMINED SHALL BE REQUIRED TO BE POSTED WITH THE GOVERNING AUTHORITY FOR THE EROSION CONTROL INSTALLATION AND MAINTENANCE.

4. THE CONTRACTOR SHALL CONSTRUCT ALL SEDIMENT AND EROSION CONTROLS IN ACCORDANCE WITH THE CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL, LATEST EDITION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, AND AS DIRECTED BY THE CITY OF MERIDEN. THE CONTRACTOR SHALL KEEP A COPY OF THE GUIDELINES ON-SITE FOR REFERENCE DURING CONSTRUCTION.

5. ADDITIONAL AND/OR ALTERNATIVE SEDIMENT AND EROSION CONTROL MEASURES MAY BE INSTALLED DURING THE CONSTRUCTION PERIOD IF FOUND NECESSARY BY THE CONTRACTOR, OWNER, SITE ENGINEER, CITY OFFICIALS , OR ANY GOVERNING AGENCY. THE CONTRACTOR SHALL CONTACT THE OWNER AND APPROPRIATE GOVERNING AGENCIES FOR APPROVAL IF ALTERNATIVE CONTROLS OTHER THAN THOSE SHOWN ON THE PLANS ARE PROPOSED.

6. THE CONTRACTOR SHALL INSPECT ALL SEDIMENT AND EROSION CONTROLS BEFORE AND AFTER EACH STORM, OR AT LEAST WEEKLY, TO VERIFY THAT THE CONTROLS ARE OPERATING PROPERLY AND MAKE REPAIRS WHERE NECESSARY.

7. THE CONTRACTOR SHALL KEEP A SUPPLY OF EROSION CONTROL MATERIAL (HAY BALES, SILT FENCE, JUTE MESH, ETC.) ON-SITE FOR MAINTENANCE AND EMERGENCY REPAIRS.

8. PROTECT EXISTING TREES THAT ARE TO BE SAVED BY FENCING AT THE DRIP LINE OR AS SHOWN WITH SNOW FENCE, ORANGE SAFETY FENCE, OR EQUIVALENT. FENCING. ANY LIMB TRIMMING SHOULD BE DONE BEFORE CONSTRUCTION BEGINS IN THAT AREA; FENCING SHALL BE MAINTAINED AND REPAIRED DURING CONSTRUCTION.

9. INSTALL PERIMETER SEDIMENT CONTROLS PRIOR TO CLEARING OR CONSTRUCTION. ALL CONSTRUCTION SHALL BE CONTAINED WITHIN THE LIMIT OF DISTURBANCE, WHICH SHALL BE MARKED WITH SILT FENCE, SAFETY FENCE, HAY BALES, RIBBONS, OR OTHER MEANS PRIOR TO CLEARING. CONSTRUCTION ACTIVITY SHALL REMAIN ON THE UPHILL SIDE OF THE SILT FENCE UNLESS WORK IS SPECIFICALLY CALLED FOR ON THE DOWNHILL SIDE OF THE FENCE.

10. ANTI-TRACKING PADS SHALL BE INSTALLED AT START OF CONSTRUCTION AND MAINTAINED THROUGHOUT THE DURATION OF CONSTRUCTION. THE LOCATION OF THE TRACKING PADS MAY CHANGE AS VARIOUS PHASES OF CONSTRUCTION ARE COMPLETED.

11. TOPSOIL SHALL BE STRIPPED AND STOCKPILED FOR USE IN FINAL LANDSCAPING. ALL EARTH STOCKPILES SHALL HAVE HAY BALES OR SILT FENCE AROUND THE LIMIT OF PILE. PILES SHALL BE TEMPORARILY SEEDED IF PILE IS TO REMAIN IN PLACE FOR MORE THAN 2 MONTHS.

12. SEDIMENTATION BASINS, IF REQUIRED, SHALL PROVIDE 134 CUBIC YARDS OF SEDIMENT STORAGE PER DISTURBED ACRE CONTRIBUTING TO THE BASIN. PROVIDE BASIN VOLUMES FOR ALL DISTURBANCE ON SITE.

13. COMPLY WITH REQUIREMENTS OF CGS SECTION 22A, 430B FOR STORMWATER DISCHARGE FROM CONSTRUCTION ACTIVITIES AND WITH DEP RECORD KEEPING AND INSPECTION REQUIREMENTS.

14. STONE ANTI-TRACKING PADS SHALL BE INSTALLED PRIOR TO ANY ON SITE EXCAVATION AND SHALL BE MAINTAINED DURING ALL EXCAVATION AND CONSTRUCTION ACTIVITIES.

15. MINIMIZE LAND DISTURBANCES. SEED AND MULCH DISTURBED AREAS WITH TEMPORARY MIX AS SOON AS PRACTICABLE (2 WEEK MAXIMUM UNSTABILIZED PERIOD) USING PERENNIAL RYEGRASS AT 40 LBS PER ACRE. MULCH ALL CUT AND FILL SLOPES AND SWALES WITH LOOSE HAY AT A RATE OF 2 TONS PER ACRE. IF NECESSARY, REPLACE LOOSE HAY ON SLOPES WITH EROSION CONTROL BLANKETS OR JUTE CLOTH. MODERATELY GRADED AREAS, ISLANDS, AND TEMPORARY CONSTRUCTION STAGING AREAS MAY BE HYDROSEEDED WITH TACKIFIER.

16. MAINTAIN EXISTING PAVED AREAS FOR CONSTRUCTION STAGING FOR AS LONG AS POSSIBLE. REMOVE AND REUSE BROKEN PAVEMENT LATER DURING ROUGH GRADING EARTHWORK PHASE IF INDICATED ON GRADING PLANS.

17. SILT FENCE AND OTHER SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH DRAWINGS AND MANUFACTURER'S RECOMMENDATIONS PRIOR TO WORK IN ANY UPLAND AREAS.

18. EXCAVATED MATERIAL FROM TEMPORARY SILT TRAPS MUST BE STOCKPILED ON UPHILL SIDE OF SILT FENCE.RO

19. INSTALL SILT FENCE ACCORDING TO MANUFACTURER'S INSTRUCTION, PARTICULARLY, BURY LOWER EDGE OF FABRIC INTO GROUND. SILT FENCE SHALL BE MIRAFI ENVIROFENCE, AMOCO SILT STOP OR EQUIVALENT APPROVED BY SITE ENGINEER. FILTER FABRIC USED SHALL BE MIRAFI 100X OR EQUIVALENT.

20. USE NEW HAY BALES AND REPLACE THEM WHENEVER THEIR CONDITION DETERIORATES BEYOND REASONABLE USABILITY. STAKE HAY BALES SECURELY INTO GROUND AND BUTT TIGHTLY TOGETHER TO PREVENT UNDERCUTTING AND BYPASSING.

21. INSTALL TEMPORARY DIVERSION DITCHES, PLUNGE POOLS, SEDIMENT BASINS, AND DEWATERING PITS AS SHOWN AND AS NECESSARY DURING VARIOUS PHASES OF CONSTRUCTION TO CONTROL RUNOFF UNTIL UPHILL AREAS ARE STABILIZED. LOCATION OF TEMPORARY SEDIMENT BASINS, IF REQUIRED, WILL REQUIRE REVIEW AND APPROVAL BY THE ENGINEER AND GOVERNING OFFICIAL.

22. DIRECT ALL DEWATERING PUMP DISCHARGE TO A SEDIMENT CONTROL DEVICE SUCH AS TEMPORARY PITS, SEDIMENT BASINS OR GRASS FILTERS WITHIN THE APPROVED LIMIT OF DISTURBANCE. DISCHARGE TO STORM SEWERS OR SURFACE WATERS FROM SEDIMENT CONTROLS SHALL BE CLEAR.

23. BLOCK THE OPEN UPSTREAM ENDS OF SEDIMENTATION BASIN OUTLET CONTROL ORIFICE UNTIL SITE IS STABILIZED AND BLOCK END OF STORM SEWERS IN EXPOSED TRENCHES WITH BOARDS AND SANDBAGS AT THE END OF EACH WORKING DAY WHEN RAIN IS EXPECTED.

24. SWEEP AFFECTED PORTIONS OF OFF SITE ROADS ONE OR MORE TIMES A DAY (OR LESS FREQUENTLY IF TRACKING IS NOT A PROBLEM) DURING CONSTRUCTION. OTHER DUST CONTROL MEASURES TO BE USED AS NECESSARY INCLUDES WATERING DOWN DISTURBED AREAS, USING CALCIUM CHLORIDE, AND COVERING LOADS ON DUMP TRUCKS.

25. PERIODICALLY CHECK ACCUMULATED SEDIMENT LEVELS IN THE SEDIMENT BASINS DURING CONSTRUCTION AND CLEAN ACCUMULATED SILT WHEN NECESSARY OR WHEN ONE FOOT OF SEDIMENT HAS ACCUMULATED. CLEAN ACCUMULATED SEDIMENT FROM CATCH BASIN SUMPS AS NECESSARY. REMOVE ACCUMULATED SEDIMENT FROM BEHIND HAY BALES AND SILT FENCE WHEN LEVEL REACHES HALF THE HEIGHT OF THE HAY BALE OR FENCE. DISPOSE OF SEDIMENT LEGALLY EITHER ON OR OFF SITE.

26. MAINTAIN ALL PERMANENT AND TEMPORARY SEDIMENT CONTROL DEVICES IN EFFECTIVE CONDITION THROUGHOUT THE CONSTRUCTION PERIOD. UPON COMPLETION OF WORK SWEEP PARKING LOT AND REMOVE ALL TEMPORARY SEDIMENT CONTROLS WHEN AUTHORIZED BY LOCAL GOVERNING AUTHORITY.

BL Companies
ARCHITECTURE
ENGINEERING
PLANNING
LANDSCAPE ARCHITECTURE
LAND SURVEYING
ENVIRONMENTAL SCIENCES

355 Research Parkway
Meriden, CT 06450
(203) 630-1406
(203) 630-2615 Fax

WESTFIELD SHOPPINGTOWN
470 LEWIS AVENUE
MERIDEN, CONNECTICUT

REVISIONS
No. Date Desc.
1. 04/09/04 BID PACKAGE
2. 05/05/04 REVISED FOR CONDITIONS OF APPROVAL

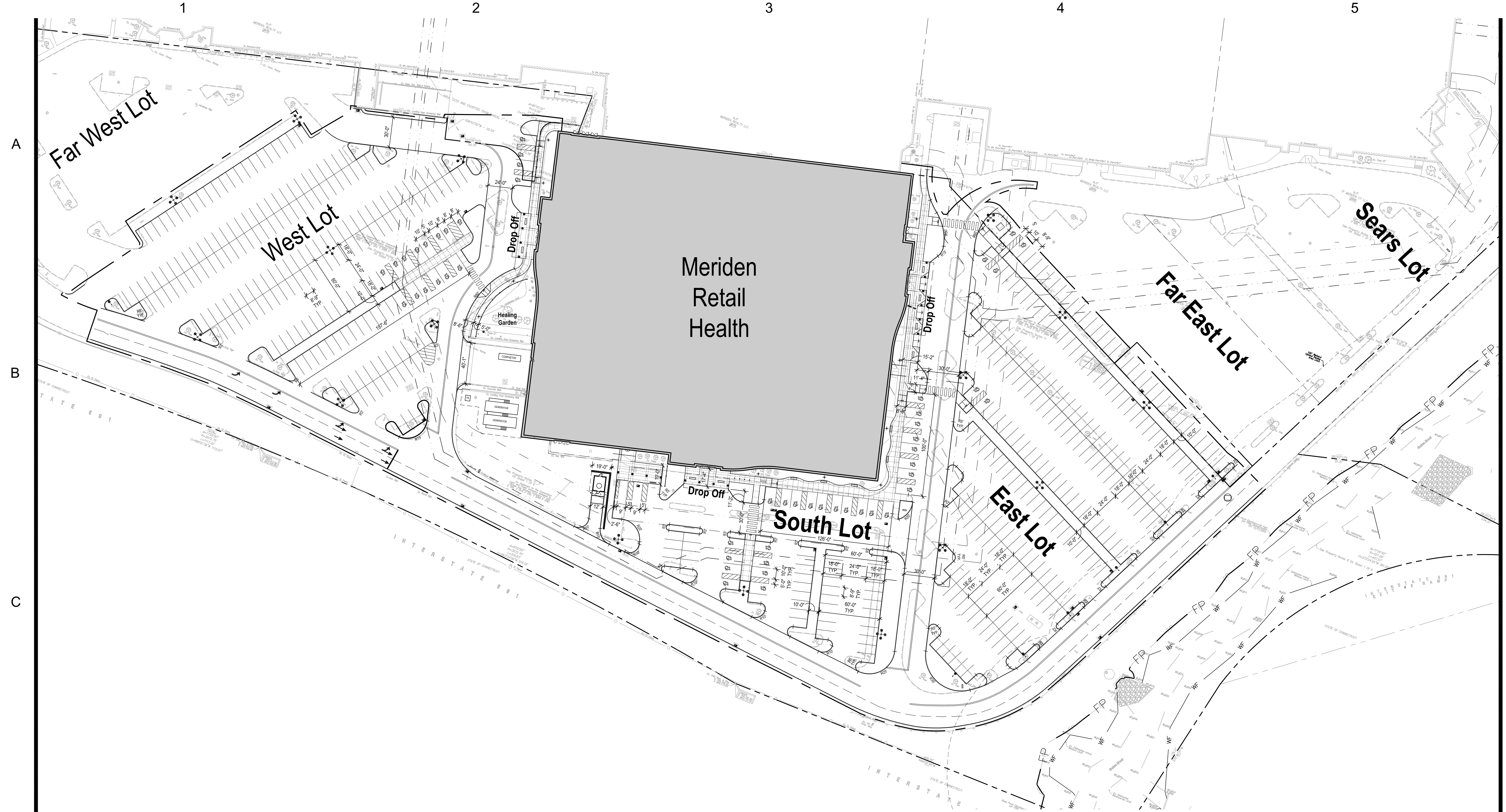
Designed	J.J.S.
Drawn	J.J.S.
Checked	
Approved	
Scale	1"=30'
Project No.	04C750
Date	3/30/04
CAD File	DNC75002

Title
DETAIL SHEET

Sheet No.
DN-2

Xref (s): BDC75001;

RECEIVED
MAY 05 2004
CITY OF MERIDEN



SLAM
The S/L/A/M Collaborative

80 Glastonbury Boulevard
Glastonbury, CT 06033-4410
Phone: 860 657.8077

www.slamcoll.com

Drawn KP
Checked TRS

REGISTERED LANDSCAPE ARCHITECT DANIEL J. GRANNIS 2552 STATE OF NEW YORK

MERIDEN RETAIL HEALTH

460 Lewis Avenue
Meriden, CT 06451

Number	Date	Issued For
	02/12/2021	ZBA SUBMISSION

PROGRESS
NOT FOR CONSTRUCTION

SITE LAYOUT

Date 02/12/2021
Scale 1" = 40'
Proj. Number 20028.10
Drawing Number L202

BUILDING AND PARKING SUMMARY

	EXISTING OSTA APPROVED DEVELOPMENT (CERTIFICATE 13-C - 06/16/1998 - Based on Plan DP-0)			EXISTING CITY APPROVED DEVELOPMENT (04/26/2004)			PROPOSED ADMINISTRATIVE DECISION (CHANGE FROM OSTA APPROVED DEVELOPMENT)			ALLOWABLE DEVELOPMENT WITH ADMINISTRATIVE DECISION		
LOCATION	LAND USE	SQUARE FOOTAGE	PARKING SPACES	LAND USE	SQUARE FOOTAGE	PARKING SPACES	LAND USE	SQUARE FOOTAGE	PARKING SPACES	LAND USE	SQUARE FOOTAGE	PARKING SPACES
Site (Former Macy's)	Retail	179,256	4,111	Retail	179,795	4,065	Medical	+539	-79	Medical	179,795	4,032
Boscov's (Formerly JCPenney)	Retail	150,792		Retail	150,800		--	+8		Retail	150,800	
Sears (Former)	Retail	120,204		Retail	120,200		--	-4		Retail	120,200	
Dick's Sporting Goods	Retail	90,000		Retail	49,667		--	-572		Retail	49,667	
Best Buy				Retail	30,356		--			Retail	30,356	
Retail (Future)				Retail	9,405		--			Retail	9,405	
Mall Shops	Retail	362,180		Retail	334,038		--	-28,142		Retail	334,038	
PAD (Future)	Retail	7,500		Retail	7,500		--	--		Retail	7,500	
TOTALS:		909,932			881,761			-28,171			881,761	4,032

NOTES:

1. PROPERTY LINES ARE APPROXIMATE AND FOR INFORMATIONAL PURPOSES ONLY.
2. ALL PROPERTIES LOCATED IN THE CITY OF MERIDEN ZIP CODE 06451.

0 150' 300'
SCALE: 1" = 150'

Tighe&Bond
213 Court Street
Suite 1100
Middletown, CT 06457
(860) 704-4760

MERIDEN RETAIL HEALTH

460 Lewis Avenue
Meriden, CT

MARK	DATE	DESCRIPTION

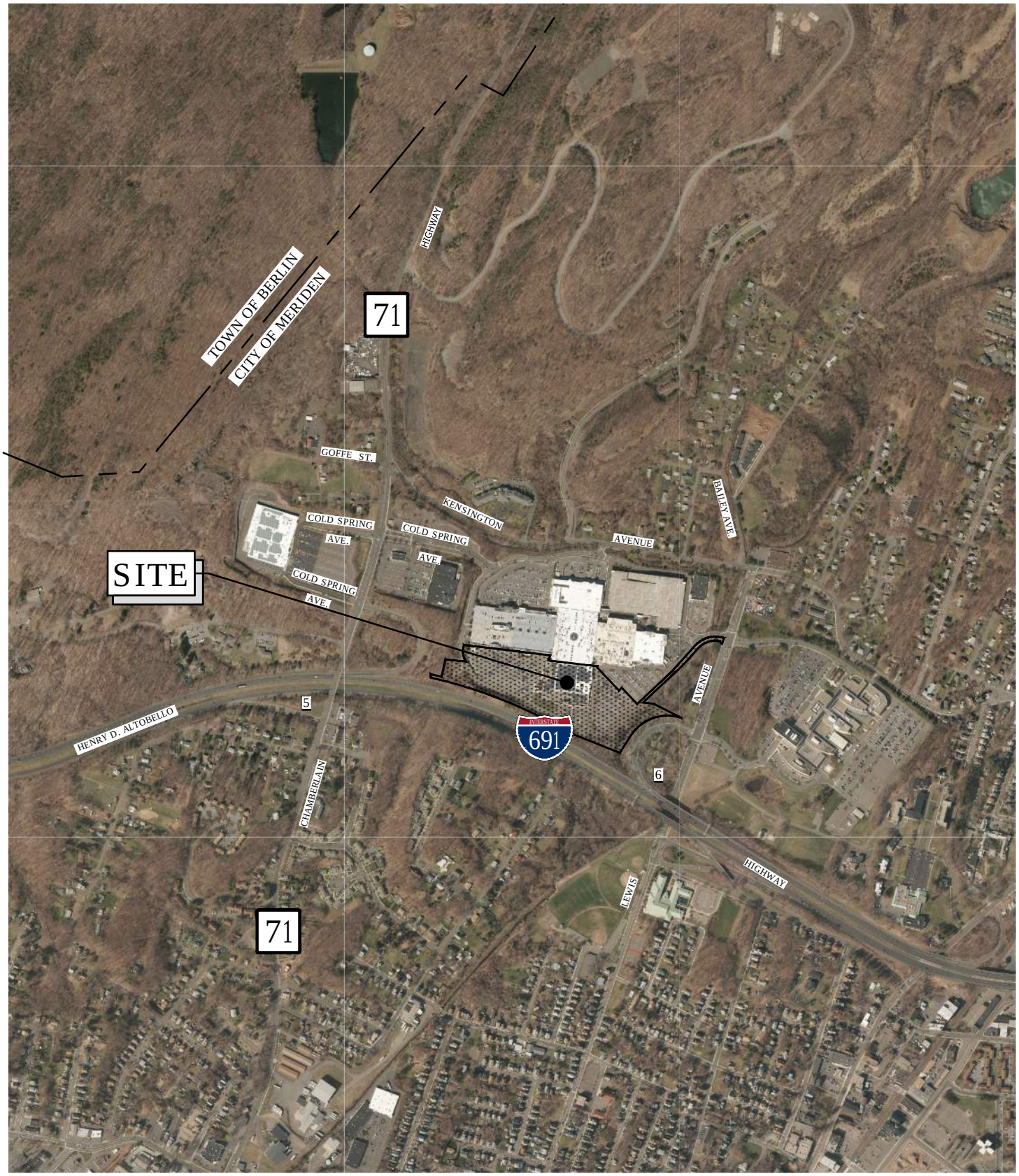
PROJECT NO:	M5078-001
DATE:	02/12/2021
FILE:	M5078-01-OSTA-SITE-PLAN.dwg
DRAWN BY:	A. CLARK
CHECKED BY:	C. YANNES
APPROVED BY:	J. BLOCK

OSTA OVERALL SITE PLAN

SCALE: 1" = 150'

OSP-001

Last Saved:
Plotted On:Feb 10, 2021-12:06pm By: AClark
Tighe & Bond: J:\M\M5078 Medcraft\01 Meriden\Drawings_Figures\AutoCAD\Figures\M5078-01-OSTA-SITE-PLAN.dwg



MERIDEN RETAIL HEALTH

460 LEWIS AVENUE, MERIDEN, CONNECTICUT

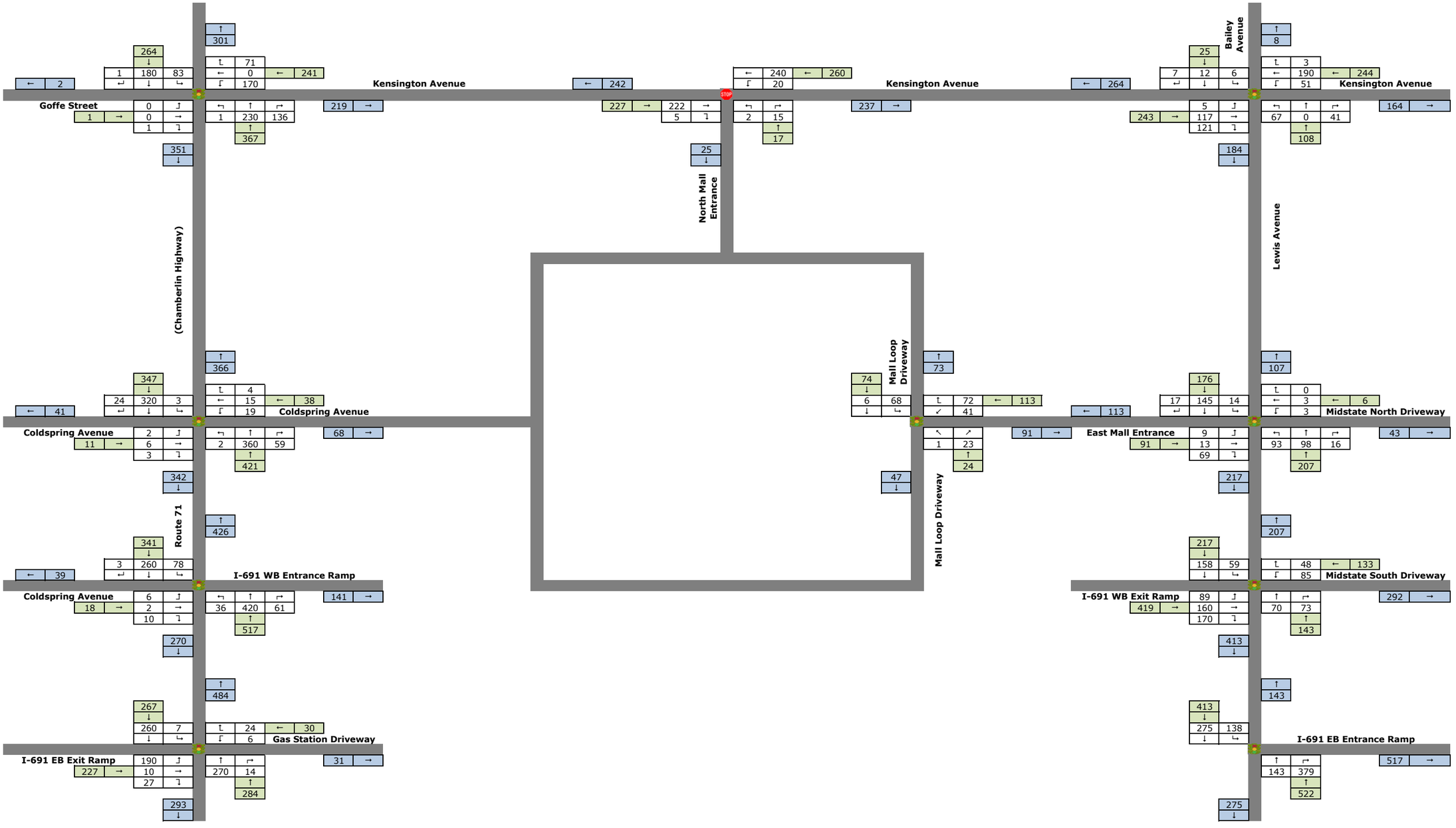
SITE LOCATION PLAN

NORTH

1" = 1000'

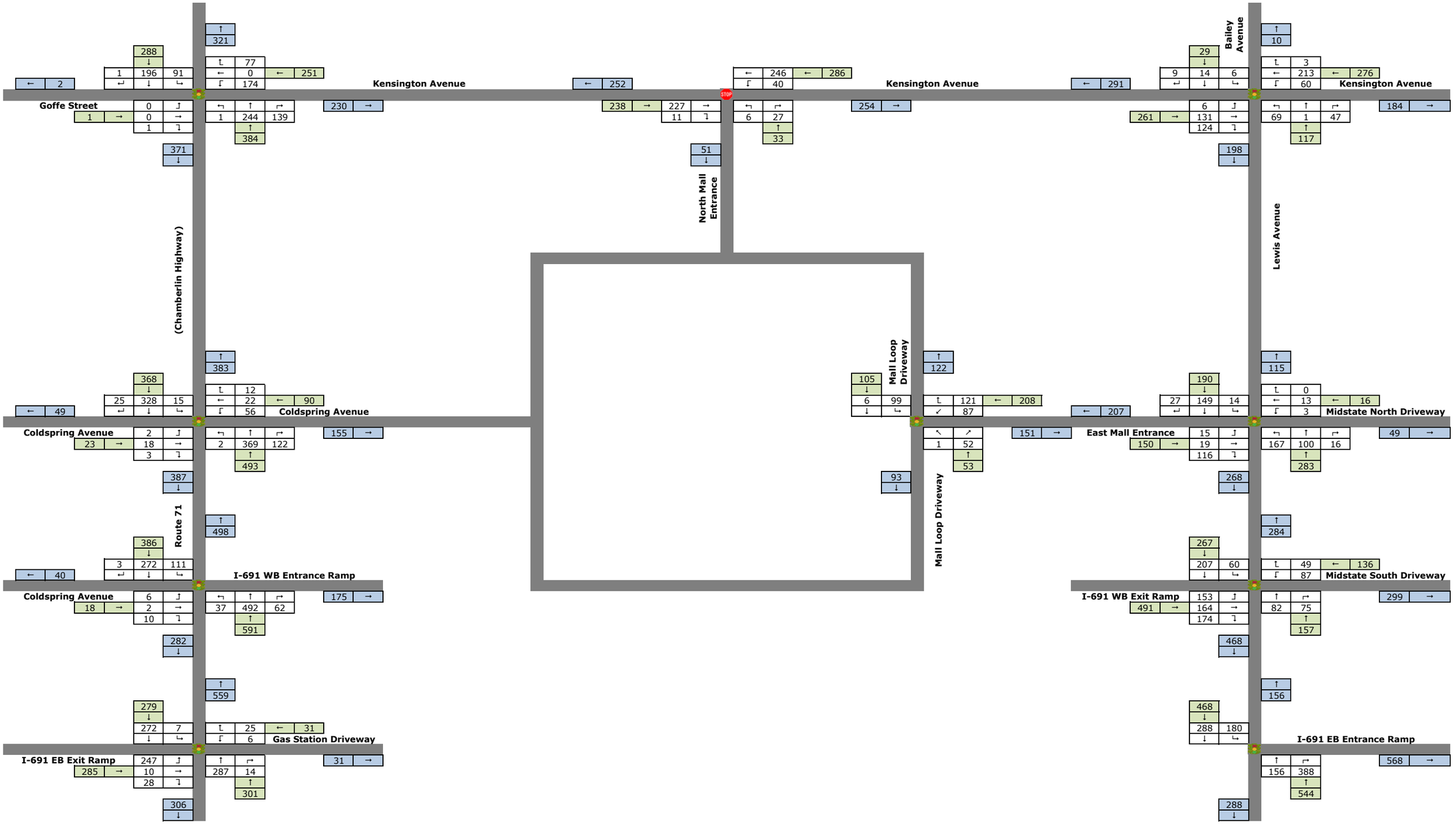
FIGURE 1

Tighe&Bond



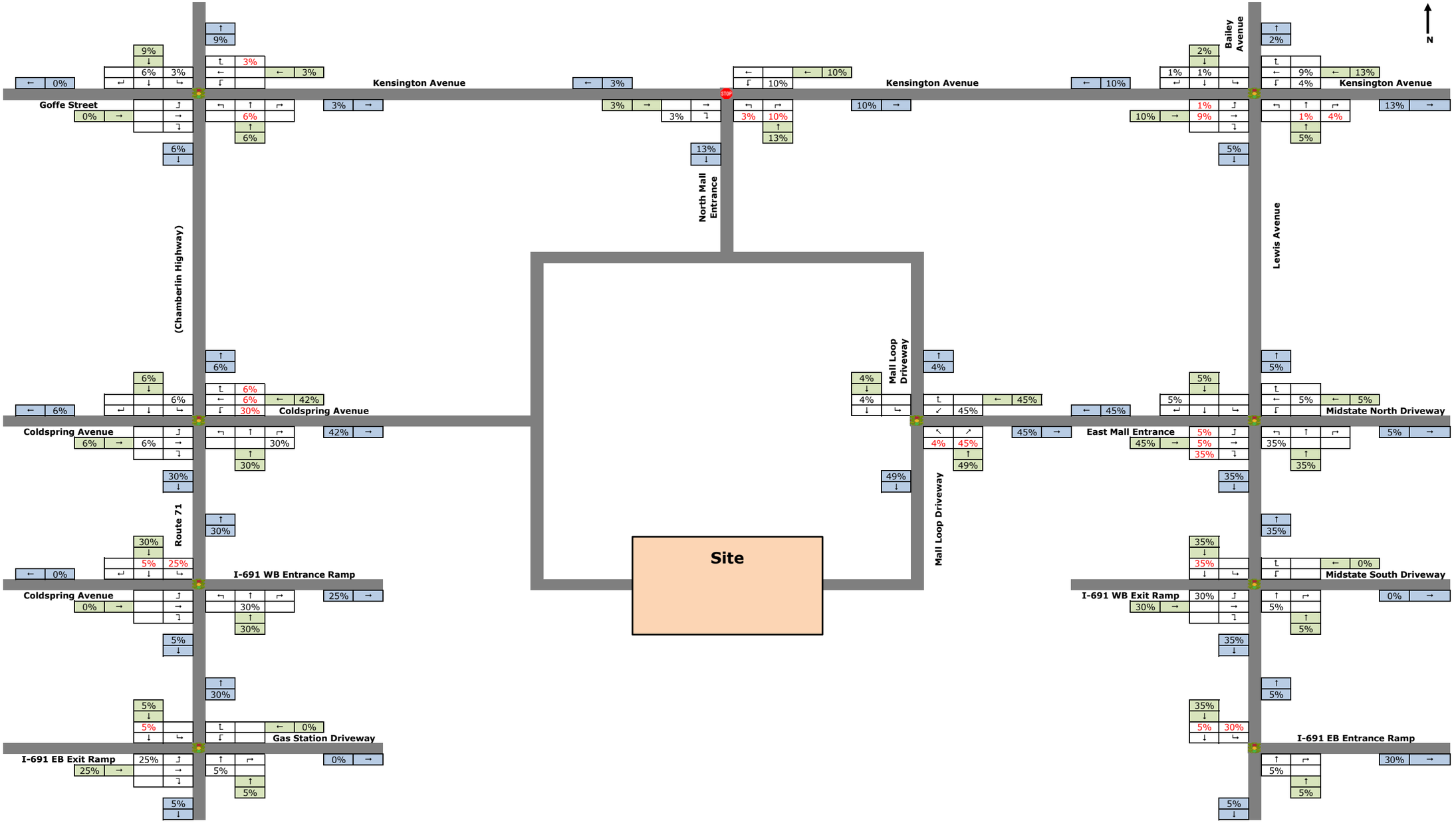
2020 Existing Traffic Volumes
Weekday Morning Peak Hour

Figure 2



2024 Background Traffic Volumes
Weekday Morning Peak Hour

Figure 3

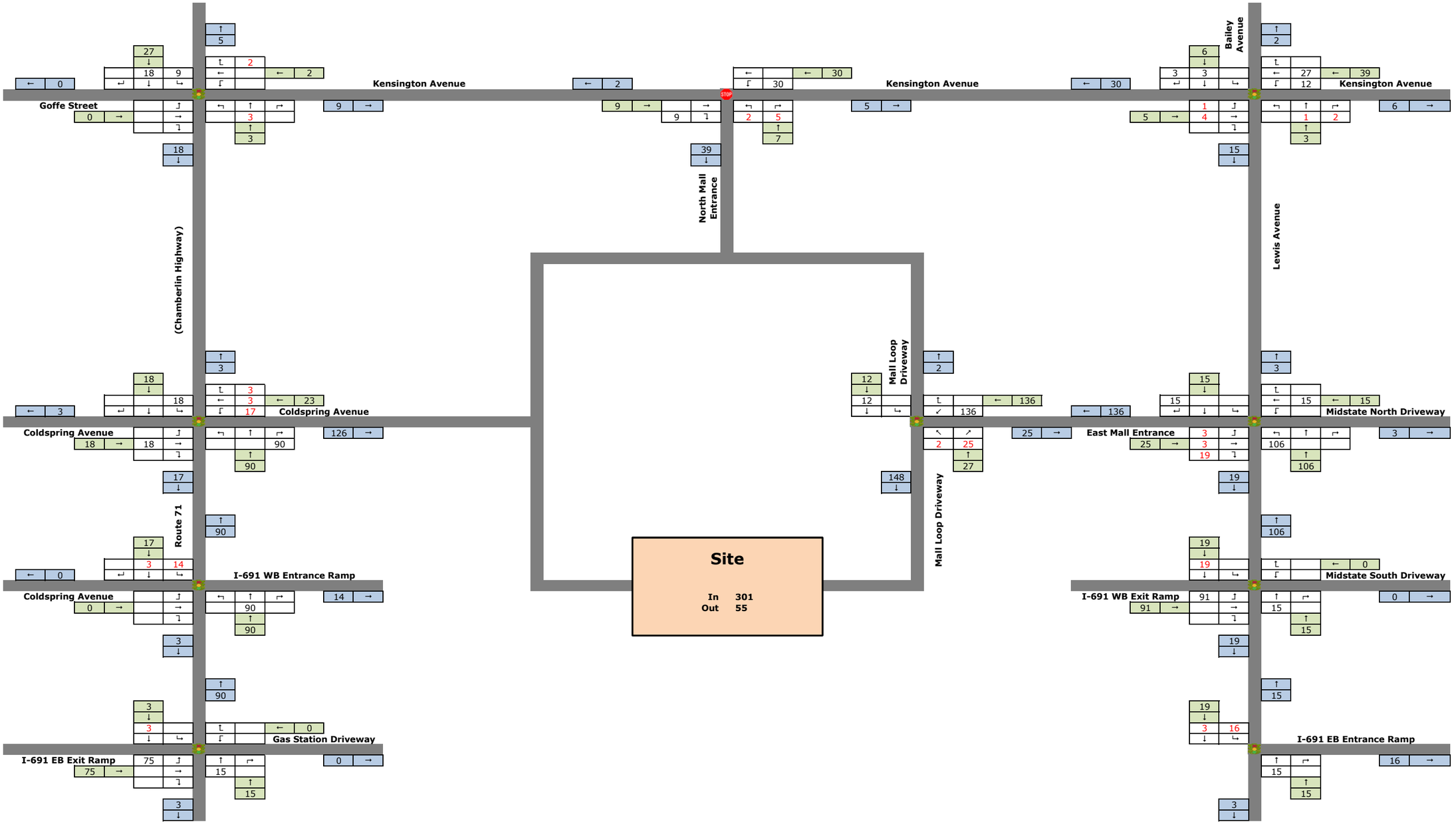


Traffic Distribution
Proposed Site Generated Traffic

Figure 4

Legend

Entering Traffic Percentage
Exiting Traffic Percentage

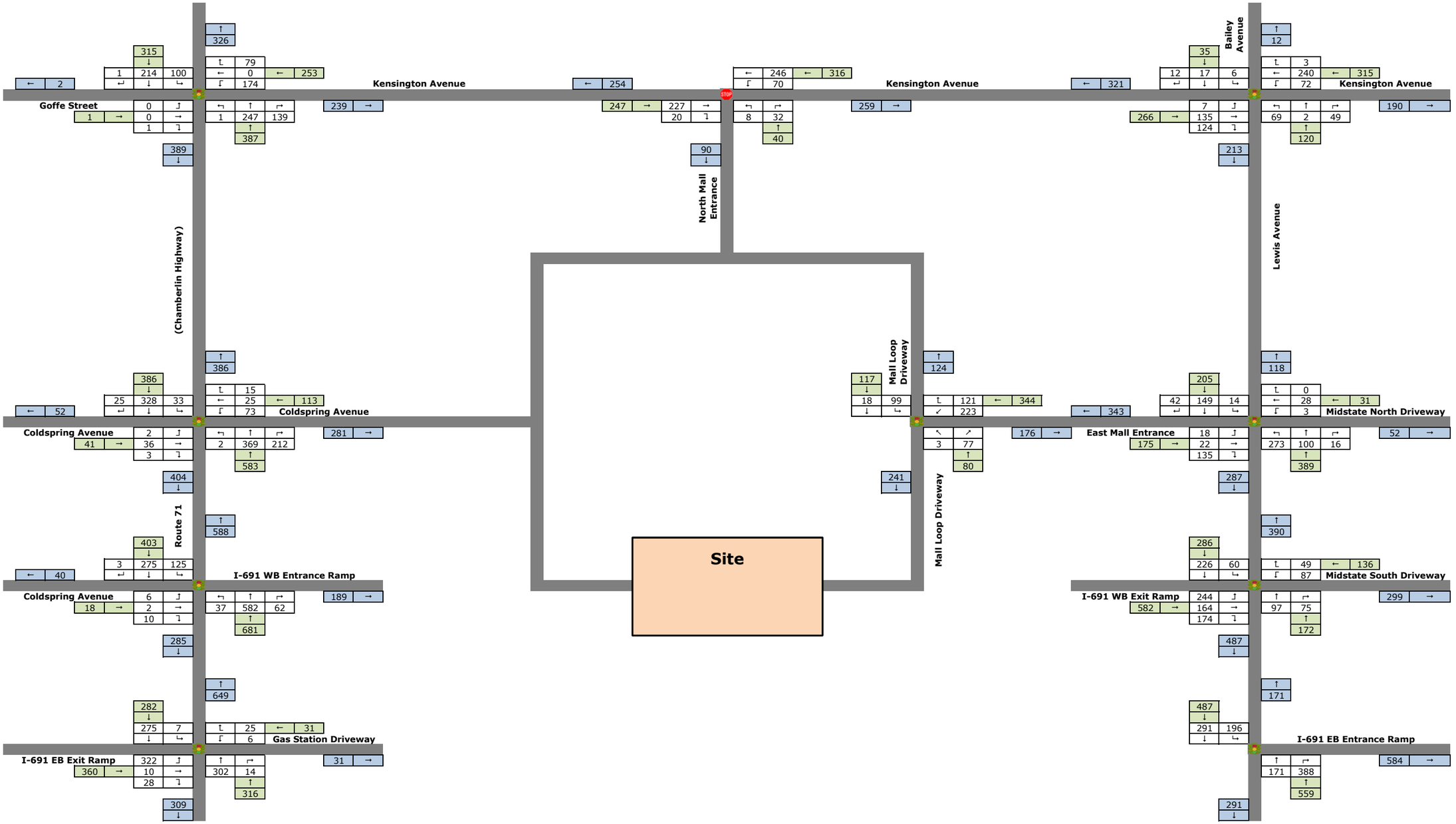


2024 Net Site Generated Traffic Volumes
Weekday Morning Peak Hour

Figure 5

Legend

Entering Traffic
Exiting Traffic



2024 Combined Traffic Volumes
Weekday Morning Peak Hour

Figure 6

TABLE 1
Site-Generated Traffic Summary

Existing - 179,795 SF Retail Space			
Peak Hour Period	**Enter**	**Exit**	**Total**
Weekday Morning	89	55	144
Weekday Afternoon	280	302	582
Saturday Midday	358	330	688

Proposed - 179,795 SF Ambulatory Care Facility (Medical Office)			
Peak Hour Period	**Enter**	**Exit**	**Total**
Weekday Morning	390	110	500
Weekday Afternoon	174	448	622
Saturday Midday	317	240	557

Net Trip Generation			
Peak Hour Period	**Enter**	**Exit**	**Total**
Weekday Morning	**301**	**55**	**356**
Weekday Afternoon	**-106**	**146**	**40**
Saturday Midday	**-41**	**-90**	**-131**

Source: Institute of Transportation Engineering, Trip Generation, 10th Edition, 2017.
Land Use - 820 Shopping Center (See Table 2)
Land Use - 720 Medical-Dental Office (See Table 3)

TABLE 2
Site-Generated Traffic Summary - Existing Use

Existing - 179,795 SF Retail Space			
Peak Hour Period	**Enter**	**Exit**	**Total**
Weekday Morning	105	64	169
Weekday Afternoon	329	356	685
Saturday Midday	421	388	809

Alternate Modes/Internal Capture Credit		**15%**	
Peak Hour Period	**Enter**	**Exit**	**Total**
Weekday Morning	16	9	25
Weekday Afternoon	49	54	103
Saturday Midday	63	58	121

Net Vehicular Trips (Total minus Alternate Modes)			
Peak Hour Period	**Enter**	**Exit**	**Total**
Weekday Morning	**89**	**55**	**144**
Weekday Afternoon	**280**	**302**	**582**
Saturday Midday	**358**	**330**	**688**

Source: Institute of Transportation Engineering, Trip Generation, 10th Edition, 2017.
Land Use - 820 Shopping Center

TABLE 3
Site-Generated Traffic Summary - Proposed Use (Medical Office)

Proposed - 179,795 SF Ambulatory Care Facility			
Peak Hour Period	**Enter**	**Exit**	**Total**
Weekday Morning	390	110	500
Weekday Afternoon	174	448	622
Saturday Midday	317	240	557

Source: Institute of Transportation Engineering, Trip Generation, 10th Edition, 2017.
Land Use - 720 Medical-Dental Office

TABLE 4
Site-Generated Traffic Summary - Existing Vacant Space

Existing - 411,743 SF Retail Space			
Peak Hour Period	**Enter**	**Exit**	**Total**
Weekday Morning	240	147	387
Weekday Afternoon	753	816	1,569
Saturday Midday	964	889	1,853

Alternate Modes/Internal Capture Credit		**15%**	
Peak Hour Period	**Enter**	**Exit**	**Total**
Weekday Morning	36	22	58
Weekday Afternoon	113	122	235
Saturday Midday	145	133	278

Net Vehicular Trips (Total minus Alternate Modes)			
Peak Hour Period	**Enter**	**Exit**	**Total**
Weekday Morning	**204**	**125**	**329**
Weekday Afternoon	**640**	**694**	**1,334**
Saturday Midday	**819**	**756**	**1,575**

Source: Institute of Transportation Engineering, Trip Generation, 10th Edition, 2017.
Land Use - 820 Shopping Center

TABLE 5
Intersection Operation Summary - Vehicular Levels of Service / Average Delay (sec/veh)

		Weekday Morning Peak Hour		
	Lane Use	**2020 Existing**	**2024 Background**	**2024 Combined**
Traffic Signal - Chamberlain Highway at I-691 EB Exit Ramp/ Gas Station Driveway				
Overall		**B / 12.6**	**B / 13.8**	**B / 15.0**
I-691 EB Exit Ramp	EBL	B / 19.9	C / 20.5	C / 21.3
	EB	B / 17.8	B / 19.1	C / 20.4
Private Driveway	WBT	A / 0.5	A / 0.5	A / 0.5
Chamberlain Highway	NBTR	A / 9.5	B / 10.2	B / 11.0
	SBLT	B / 11.9	B / 12.9	B / 13.8
Traffic Signal - Chamberlain Highway at Coldspring Avenue/ I-691 WB Entrance Ramp				
Overall		**A / 4.7**	**A / 5.2**	**A / 5.7**
Coldspring Avenue	EBLT	C / 25.8	C / 25.8	C / 25.8
	EBR	A / 0.2	A / 0.2	A / 0.2
Chamberlain Highway	NBL	A / 2.7	A / 2.7	A / 2.7
	NBTR	A / 5.9	A / 6.3	A / 6.7
	SBL	A / 1.3	A / 2.3	A / 2.9
	SBTR	A / 3.5	A / 4.2	A / 4.8
Traffic Signal - Chamberlain Highway at Coldspring Avenue				
Overall		**A / 8.8**	**B / 10.5**	**B / 11.9**
Coldspring Avenue	EBL	C / 28.5	C / 28.5	C / 28.5
	EBTR	C / 25.4	C / 27.8	C / 30.7
	WBL	C / 28.1	C / 30.6	C / 31.8
	WBTR	C / 24.9	C / 24.2	C / 25.0
Chamberlain Highway	NBLT	B / 12.0	B / 12.9	B / 15.5
	NBR	A / 0.2	A / 0.3	A / 0.7
	SBL	A / 5.0	A / 6.0	A / 6.7
	SBTR	A / 4.3	A / 6.2	A / 7.7
Traffic Signal - Coldspring Avenue at Plaza Driveway/ Parking Lot Driveway				
Overall		**A / 3.1**	**A / 2.2**	**A / 1.8**
Coldspring Avenue	EBL	A / 0.0	A / 0.0	A / 0.0
	EBTR	A / 1.1	A / 0.8	A / 0.8
	WBL	A / 6.0	A / 4.3	A / 4.1
	WBTR	A / 5.5	A / 3.9	A / 3.7
Plaza Driveway	NBL	B / 14.8	B / 19.5	C / 21.0
	NBTR	A / 0.0	A / 0.0	A / 0.0
Parking Lot Driveway	SB	A / 0.0	A / 0.0	A / 0.0
Traffic Signal - Chamberlain Highway at Goffe Street/ Kensington Avenue				
Overall		**B / 11.4**	**B / 11.5**	**B / 11.4**
Goffe Street	EB	A / 0.0	A / 0.0	A / 0.0
Kensington Avenue	WB	B / 19.4	C / 21.0	C / 21.2
Chamberlain Highway	NBLT	B / 15.0	B / 13.8	B / 13.8
	NBR	A / 4.1	A / 3.6	A / 3.6
	SBL	A / 4.9	A / 5.1	A / 5.2
	SBTR	A / 4.9	A / 5.0	A / 5.1
Traffic Signal - Kensington Avenue at Lewis Avenue/ Bailey Avenue				
Overall		**B / 14.9**	**B / 18.2**	**B / 18.7**
Kensington Avenue	EB	B / 19.2	C / 25.8	C / 27.9
	WB	A / 9.9	B / 10.1	A / 9.7
Lewis Avenue	NBLT	C / 23.7	C / 30.1	C / 32.5
	NBR	A / 0.5	A / 0.7	A / 0.9
Bailey Avenue	SB	C / 22.6	C / 26.7	C / 27.1

TABLE 5 (Continued)
Intersection Operation Summary - Vehicular Levels of Service / Average Delay (sec/veh)

		Weekday Morning Peak Hour		
	Lane Use	**2020 Existing**	**2024 Background**	**2024 Combined**
Traffic Signal - East Mall Entrance at Mall Loop Driveway				
Overall		**B / 17.7**	**B / 16.8**	**B / 14.5**
Mall Loop Driveway	EBL	B / 20.0	C / 22.0	C / 21.3
	EBT	B / 18.0	B / 19.6	B / 19.5
East Mall Entrance	WBTR	A / 0.2	A / 0.6	A / 2.2
Mall Loop Driveway	SBL	D / 46.1	D / 49.1	D / 52.4
	SBR	C / 22.7	C / 22.5	B / 17.3
Traffic Signal - Lewis Avenue at East Mall Entrance/ Midstate North Driveway				
Overall		**C / 23.5**	**C / 23.4**	**C / 24.1**
East Mall Entrance	EBLT	B / 12.2	B / 13.6	C / 23.0
	EBR	A / 0.5	A / 0.6	A / 0.7
Midstate North Driveway	WBLT	C / 21.8	C / 21.2	C / 23.3
	WBR	A / 0.0	A / 0.0	A / 0.0
Lewis Avenue	NBL	C / 25.3	C / 28.0	C / 27.9
	NBTR	B / 14.5	B / 16.0	B / 15.0
	SBL	D / 39.5	D / 40.9	D / 42.0
	SBTR	D / 38.7	D / 39.7	D / 39.6
Traffic Signal - Lewis Avenue at I-691 WB Exit Ramp/ Midstate South Driveway				
Overall		**B / 14.2**	**B / 15.4**	**B / 16.9**
I-691 WB Exit Ramp	EBL	C / 20.6	C / 23.9	C / 27.1
	EBLT	C / 25.2	C / 26.0	C / 26.7
	EBR	A / 6.5	A / 6.4	A / 6.0
Midstate South Driveway	WBL	C / 25.5	C / 26.9	C / 27.8
	WBTR	A / 4.1	A / 4.3	A / 4.3
Lewis Avenue	NBTR	A / 7.6	A / 8.1	A / 8.9
	SBL	B / 14.1	B / 14.5	B / 15.4
	SBT	B / 12.9	B / 13.2	B / 14.1
Traffic Signal - Lewis Avenue at I-691 EB Entrance Ramp				
Overall		**A / 5.5**	**A / 7.6**	**A / 8.0**
Lewis Avenue	NBT	A / 4.1	A / 3.6	A / 3.8
	NBR	A / 1.4	A / 1.2	A / 1.2
	SBL	C / 22.7	C / 33.0	C / 33.3
	SBT	A / 3.3	A / 2.5	A / 2.5
Unsignalized TWSC - Kensington Avenue at North Mall Entrance				
Kensington Avenue	WBL	A / 7.8	A / 7.9	A / 8.1
North Mall Entrance	NBL	B / 12.4	B / 14.0	C / 15.3
	NBR	A / 9.6	B / 10.0	B / 10.1

TABLE 6

Intersection Operation Summary - Vehicular 50th / 95th Percentile Queue (In Feet)

			Weekday Morning Peak Hour		
	Lane Use	**Available Storage**	**2020 Existing**	**2024 Background**	**2024 Combined**
Traffic Signal - Chamberlain Highway at I-691 EB Exit Ramp/ Gas Station Driveway					
I-691 EB Exit Ramp	EBL	325	21 / 82	26 / 103	33 / 130
	EB	>500	16 / 73	23 / 96	31 / 127
Private Driveway	WB	50	0 / 0	0 / 0	0 / 0
Chamberlain Highway	NBTR	>500	16 / 59	18 / 66	22 / 75
	SBLT	>500	33 / 127	37 / 140	42 / 152
Traffic Signal - Chamberlain Highway at Coldspring Avenue/ I-691 WB Entrance Ramp					
Coldspring Avenue	EBLT	>500	4 / 14	4 / 14	4 / 14
	EBR	165	0 / 0	0 / 0	0 / 0
Chamberlain Highway	NBL	125	1 / 13	0 / 13	0 / 13
	NBTR	>500	22 / 99	26 / 119	32 / 145
	SBL	415	0 / 6	1 / 17	1 / 23
	SBTR	415	12 / 24	24 / 79	29 / 96
Traffic Signal - Chamberlain Highway at Coldspring Avenue					
Coldspring Avenue	EBL	150	1 / 7	1 / 7	1 / 7
	EBTR	>500	2 / 15	8 / 27	15 / 43
	WBL	190	7 / 25	20 / 49	24 / 58
	WBTR	190	7 / 27	13 / 44	17 / 51
Chamberlain Highway	NBLT	415	60 / 269	61 / 133	126 / 139
	NBR	415	0 / 0	0 / 1	1 / 2
	SBL	250	0 / 4	1 / 10	6 / 16
	SBTR	400	35 / 123	36 / 126	75 / 126
Traffic Signal - Coldspring Avenue at Plaza Driveway/ Parking Lot Driveway					
Coldspring Avenue	EBL	100	0 / 0	0 / 0	0 / 0
	EBTR	190	0 / 5	0 / 10	0 / 17
	WBL	225	1 / 6	1 / 5	1 / 5
	WBTR	500	1 / 8	3 / 14	4 / 16
Plaza Driveway	NBL	75	1 / 7	1 / 8	1 / 8
	NBTR	100	0 / 0	0 / 0	0 / 0
Parking Lot Driveway	SB	125	0 / 0	0 / 0	0 / 0
Traffic Signal - Chamberlain Highway at Goffe Street/ Kensington Avenue					
Goffe Street	EB	430	0 / 0	0 / 0	0 / 0
Kensington Avenue	WB	>500	34 / 101	40 / 106	41 / 107
Chamberlain Highway	NBLT	380	50 / 127	54 / 126	55 / 128
	NBR	380	0 / 32	0 / 31	0 / 31
	SBL	175	7 / 28	9 / 31	9 / 34
	SBTR	>500	17 / 55	20 / 61	22 / 67
Traffic Signal - Kensington Avenue at Lewis Avenue/ Bailey Avenue					
Kensington Avenue	EB	>500	48 / 194	65 / 226	74 / 240
	WB	>500	23 / 150	26 / 169	31 / 192
Lewis Avenue	NBLT	300	15 / 73	19 / 84	20 / 89
	NBR	440	0 / 0	0 / 0	0 / 0
Bailey Avenue	SB	>500	4 / 34	5 / 40	7 / 46

TABLE 6 (Continued)

Intersection Operation Summary - Vehicular 50th / 95th Percentile Queue (In Feet)

			Weekday Morning Peak Hour		
	Lane Use	**Available Storage**	**2020 Existing**	**2024 Background**	**2024 Combined**
Traffic Signal - East Mall Entrance at Mall Loop Driveway					
Mall Loop Driveway	EBL	>500	0 / 3	0 / 4	1 / 9
	EBT	>500	8 / 31	19 / 61	31 / 84
East Mall Entrance	WBTR	145	0 / 1	0 / 0	8 / 13
Mall Loop Driveway	SBL	100	42 / 95	65 / 131	71 / 135
	SBR	100	0 / 11	0 / 11	0 / 18
Traffic Signal - Lewis Avenue at East Mall Entrance/ Midstate North Driveway					
East Mall Entrance	EBLT	135	3 / 10	6 / 16	10 / 33
	EBR	135	0 / 0	0 / 0	0 / 0
Midstate North Driveway	WBLT	365	2 / 13	5 / 26	12 / 44
	WBR	365	0 / 0	0 / 0	0 / 0
Lewis Avenue	NBL	450	17 / 55	35 / 98	62 / 152
	NBTR	605	29 / 100	32 / 109	33 / 106
	SBL	75	7 / 32	7 / 34	8 / 34
	SBTR	450	41 / 98	46 / 109	52 / 115
Traffic Signal - Lewis Avenue at I-691 WB Exit Ramp/ Midstate South Driveway					
I-691 WB Exit Ramp	EBL	>500	25 / 61	46 / 98	71 / 140
	EBLT	>500	56 / 115	62 / 124	73 / 143
	EBR	55	0 / 42	0 / 42	0 / 41
Midstate South Driveway	WBL	365	23 / 61	25 / 66	26 / 68
	WBTR	460	0 / 16	0 / 16	0 / 17
Lewis Avenue	NBTR	>500	7 / 27	9 / 32	11 / 37
	SBL	75	13 / 42	14 / 45	14 / 47
	SBT	600	18 / 43	24 / 57	28 / 64
Traffic Signal - Lewis Avenue at I-691 EB Entrance Ramp					
Lewis Avenue	NBT	80	14 / 34	16 / 40	19 / 44
	NBR	140	0 / 23	0 / 22	0 / 23
	SBL	175	21 / 42	40 / 69	44 / 74
	SBT	>500	23 / 44	25 / 41	25 / 41
Unsignalized TWSC - Kensington Avenue at North Mall Entrance					
Kensington Avenue	WBL	>500	3	3	5
North Mall Driveway	NBL	45	0	3	3
	NBR	45	3	3	5

TABLE 7
Study Area Collision History Summary

COLLISION TYPE

	2018	2019	2020	Total	Percent
Rear-End	8	13	6	**27**	**37.5%**
Angle	8	4	6	**18**	**25.0%**
Sideswipe, Same Direction	10	1	6	**17**	**23.6%**
Head-On	1	2	1	**4**	**5.6%**
Fixed Object	1	1	1	**3**	**4.2%**
Other	0	1	0	**1**	**1.4%**
Other Non-Collision	1	0	0	**1**	**1.4%**
Other Non-Fixed Object	0	1	0	**1**	**1.4%**
TOTAL	**29**	**23**	**20**	**72**	**100%**

SEVERITY

	2018	2019	2020	Total	Percent
Fatal	0	0	0	**0**	**0.0%**
Serious Injury	1	0	1	**2**	**2.8%**
Minor Injury / Property Damage Only (PDO)	28	23	19	**70**	**97.2%**
TOTAL	**29**	**23**	**20**	**72**	**100%**

BY STUDY AREA INTERSECTION

	2018	2019	2020	Total	Percent
Lewis Avenue at I-691 WB Exit Ramp/ Midstate South Driveway	6	4	3	**13**	**18.1%**
Chamberlain Highway at I-691 EB Exit Ramp	6	2	2	**10**	**13.9%**
Chamberlain Highway at Goffe Street/ Kensington Avenue	5	1	3	**9**	**12.5%**
Lewis Avenue at I-691 EB Entrance Ramp	3	1	4	**8**	**11.1%**
Chamberlain Highway at I-691 WB Entrance Ramp	3	3	1	**7**	**9.7%**
Kensington Avenue at Lewis Avenue/ Bailey Avenue	4	3	0	**7**	**9.7%**
Chamberlain Highway at Coldspring Avenue	0	4	2	**6**	**8.3%**
Kensington Avenue at North Mall Entrance	1	4	1	**6**	**8.3%**
Lewis Avenue at East Mall Entrance/ Midstate North Driveway	1	1	4	**6**	**8.3%**
TOTAL	**29**	**23**	**20**	**72**	**100%**

TABLE 8
Intersection Collision History Summary
Intersection: Chamberlain Highway at I-691 EB Exit Ramp

COLLISION TYPE

	2018	2019	2020	Total	Percent
Sideswipe, Same Direction	4	0	0	**4**	**40.0%**
Angle	2	0	1	**3**	**30.0%**
Rear-End	0	2	1	**3**	**30.0%**
TOTAL	**6**	**2**	**2**	**10**	**100%**

SEVERITY

	2018	2019	2020	Total	Percent
Fatal	0	0	0	**0**	**0.0%**
Serious Injury	0	0	0	**0**	**0.0%**
Minor Injury / Property Damage Only (PDO)	6	2	2	**10**	**100.0%**
TOTAL	**6**	**2**	**2**	**10**	**100%**

TABLE 9
Intersection Collision History Summary
Intersection: Chamberlain Highway at I-691 WB Entrance Ramp

COLLISION TYPE

	2018	2019	2020	Total	Percent
Angle	2	1	1	**4**	**57.1%**
Rear-End	1	2	0	**3**	**42.9%**
TOTAL	**3**	**3**	**1**	**7**	**100%**

SEVERITY

	2018	2019	2020	Total	Percent
Fatal	0	0	0	**0**	**0.0%**
Serious Injury	0	0	0	**0**	**0.0%**
Minor Injury / Property Damage Only (PDO)	3	3	1	**7**	**100.0%**
TOTAL	**3**	**3**	**1**	**7**	**100%**

TABLE 10
Intersection Collision History Summary
Intersection: Chamberlain Highway at Coldspring Avenue

COLLISION TYPE

	2018	2019	2020	Total	Percent
Rear-End	0	2	1	**3**	**50.0%**
Angle	0	1	0	**1**	**16.7%**
Head-On	0	1	0	**1**	**16.7%**
Sideswipe, Same Direction	0	0	1	**1**	**16.7%**
TOTAL	**0**	**4**	**2**	**6**	**100%**

SEVERITY

	2018	2019	2020	Total	Percent
Fatal	0	0	0	**0**	**0.0%**
Serious Injury	0	0	0	**0**	**0.0%**
Minor Injury / Property Damage Only (PDO)	0	4	2	**6**	**100.0%**
TOTAL	**0**	**4**	**2**	**6**	**100%**

TABLE 11
Intersection Collision History Summary
Intersection: Chamberlain Highway at Goffe Street/ Kensington Avenue

COLLISION TYPE

	2018	2019	2020	Total	Percent
Angle	2	0	1	**3**	**33.3%**
Rear-End	2	0	1	**3**	**33.3%**
Fixed Object	1	1	0	**2**	**22.2%**
Sideswipe, Same Direction	0	0	1	**1**	**11.1%**
TOTAL	**5**	**1**	**3**	**9**	**100%**

SEVERITY

	2018	2019	2020	Total	Percent
Fatal	0	0	0	**0**	**0.0%**
Serious Injury	1	0	0	**1**	**11.1%**
Minor Injury / Property Damage Only (PDO)	4	1	3	**8**	**88.9%**
TOTAL	**5**	**1**	**3**	**9**	**100%**

TABLE 12
Intersection Collision History Summary
Intersection: Kensington Avenue at North Mall Entrance

COLLISION TYPE

	2018	2019	2020	Total	Percent
Rear-End	0	1	1	**2**	**33.3%**
Angle	0	1	0	**1**	**16.7%**
Other	0	1	0	**1**	**16.7%**
Other Non-Fixed Object	0	1	0	**1**	**16.7%**
Sideswipe, Same Direction	1	0	0	**1**	**16.7%**
TOTAL	**1**	**4**	**1**	**6**	**100%**

SEVERITY

	2018	2019	2020	Total	Percent
Fatal	0	0	0	**0**	**0.0%**
Serious Injury	0	0	0	**0**	**0.0%**
Minor Injury / Property Damage Only (PDO)	1	4	1	**6**	**100.0%**
TOTAL	**1**	**4**	**1**	**6**	**100%**

TABLE 13
Intersection Collision History Summary
Intersection: Kensington Avenue at Lewis Avenue/ Bailey Avenue

COLLISION TYPE

	2018	2019	2020	Total	Percent
Rear-End	3	2	0	**5**	**71.4%**
Angle	1	1	0	**2**	**28.6%**
TOTAL	**4**	**3**	**0**	**7**	**100%**

SEVERITY

	2018	2019	2020	Total	Percent
Fatal	0	0	0	**0**	**0.0%**
Serious Injury	0	0	0	**0**	**0.0%**
Minor Injury / Property Damage Only (PDO)	4	3	0	**7**	**100.0%**
TOTAL	**4**	**3**	**0**	**7**	**100%**

TABLE 14
Intersection Collision History Summary
Intersection: Lewis Avenue at East Mall Entrance/ Midstate North Driveway

COLLISION TYPE

	2018	2019	2020	Total	Percent
Head-On	0	1	1	**2**	**33.3%**
Sideswipe, Same Direction	1	0	1	**2**	**33.3%**
Angle	0	0	1	**1**	**16.7%**
Fixed Object	0	0	1	**1**	**16.7%**
TOTAL	**1**	**1**	**4**	**6**	**100%**

SEVERITY

	2018	2019	2020	Total	Percent
Fatal	0	0	0	**0**	**0.0%**
Serious Injury	0	0	1	**1**	**16.7%**
Minor Injury / Property Damage Only (PDO)	1	1	3	**5**	**83.3%**
TOTAL	**1**	**1**	**4**	**6**	**100%**

TABLE 15
Intersection Collision History Summary
Intersection: Lewis Avenue at I-691 WB Exit Ramp/ Midstate South Driveway

COLLISION TYPE

	2018	2019	2020	Total	Percent
Rear-End	2	3	1	**6**	**46.2%**
Sideswipe, Same Direction	2	1	2	**5**	**38.5%**
Angle	1	0	0	**1**	**7.7%**
Other Non-Collision	1	0	0	**1**	**7.7%**
TOTAL	**6**	**4**	**3**	**13**	**100%**

SEVERITY

	2018	2019	2020	Total	Percent
Fatal	0	0	0	**0**	**0.0%**
Serious Injury	0	0	0	**0**	**0.0%**
Minor Injury / Property Damage Only (PDO)	6	4	3	**13**	**100.0%**
TOTAL	**6**	**4**	**3**	**13**	**100%**

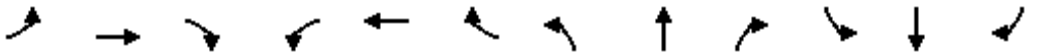
TABLE 16
Intersection Collision History Summary
Intersection: Lewis Avenue at I-691 EB Entrance Ramp

COLLISION TYPE

	2018	2019	2020	Total	Percent
Sideswipe, Same Direction	2	0	1	**3**	**37.5%**
Angle	0	0	2	**2**	**25.0%**
Rear-End	0	1	1	**2**	**25.0%**
Head-On	1	0	0	**1**	**12.5%**
TOTAL	**3**	**1**	**4**	**8**	**100%**

SEVERITY

	2018	2019	2020	Total	Percent
Fatal	0	0	0	**0**	**0.0%**
Serious Injury	0	0	0	**0**	**0.0%**
Minor Injury / Property Damage Only (PDO)	3	1	4	**8**	**100.0%**
TOTAL	**3**	**1**	**4**	**8**	**100%**

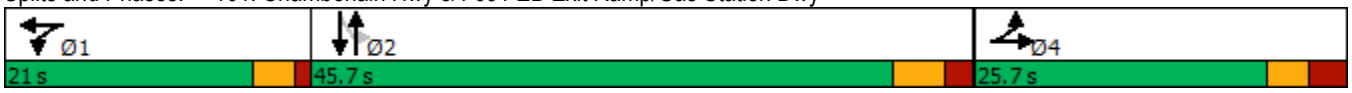


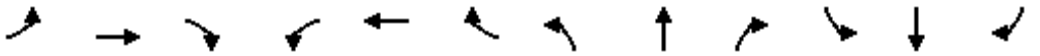
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	190	10	27	6	0	24	0	270	14	7	260	0
Future Volume (vph)	190	10	27	6	0	24	0	270	14	7	260	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	11	12	12	12	12
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.963			0.894			0.993				
Flt Protected	0.950	0.968			0.990						0.999	
Satd. Flow (prot)	1633	1602	0	0	1602	0	0	3300	0	0	1808	0
Flt Permitted	0.950	0.968			0.990						0.988	
Satd. Flow (perm)	1633	1602	0	0	1602	0	0	3300	0	0	1788	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			99			7				
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		333			117			418			912	
Travel Time (s)		9.1			3.2			8.1			17.8	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	209	11	30	7	0	26	0	297	15	8	286	0
Shared Lane Traffic (%)	39%											
Lane Group Flow (vph)	127	123	0	0	33	0	0	312	0	0	294	0
Turn Type	Split	NA		Split	NA			NA		Perm	NA	
Protected Phases	4	4		1	1			2			2	
Permitted Phases										2		
Detector Phase	4	4		1	1			2		2	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0			15.0		15.0	15.0	
Minimum Split (s)	12.7	12.7		21.0	21.0			20.7		20.7	20.7	
Total Split (s)	25.7	25.7		21.0	21.0			45.7		45.7	45.7	
Total Split (%)	27.8%	27.8%		22.7%	22.7%			49.5%		49.5%	49.5%	
Yellow Time (s)	3.0	3.0		3.0	3.0			3.6		3.6	3.6	
All-Red Time (s)	2.7	2.7		1.0	1.0			2.1		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	
Total Lost Time (s)	5.7	5.7			4.0			5.7			5.7	
Lead/Lag				Lead	Lead			Lag		Lag	Lag	
Lead-Lag Optimize?				Yes	Yes			Yes		Yes	Yes	
Recall Mode	None	None		None	None			Min		Min	Min	
Act Effct Green (s)	8.9	8.9			7.3			19.6			19.6	
Actuated g/C Ratio	0.20	0.20			0.17			0.44			0.44	
v/c Ratio	0.38	0.36			0.09			0.21			0.37	
Control Delay	19.9	17.8			0.5			9.5			11.9	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	19.9	17.8			0.5			9.5			11.9	
LOS	B	B			A			A			B	
Approach Delay		18.9			0.5			9.5			11.9	
Approach LOS		B			A			A			B	
Queue Length 50th (ft)	21	16			0			16			33	
Queue Length 95th (ft)	82	73			0			59			127	
Internal Link Dist (ft)		253			37			338			832	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)												
Base Capacity (vph)	772	766			703			2890			1565	
Starvation Cap Reductn	0	0			0			0			0	
Spillback Cap Reductn	0	0			0			0			0	
Storage Cap Reductn	0	0			0			0			0	
Reduced v/c Ratio	0.16	0.16			0.05			0.11			0.19	

Intersection Summary			
Area Type:	Other		
Cycle Length: 92.4			
Actuated Cycle Length: 44.1			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.38			
Intersection Signal Delay: 12.6		Intersection LOS: B	
Intersection Capacity Utilization 41.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 101: Chamberlain Hwy & I-691 EB Exit Ramp/Gas Station Dwy



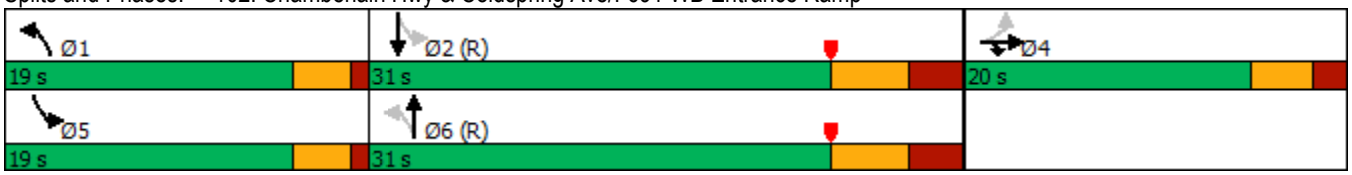


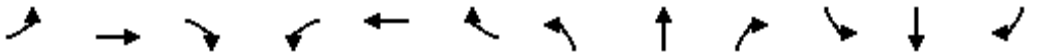
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	2	10	0	0	0	36	420	61	78	260	3
Future Volume (vph)	6	2	10	0	0	0	36	420	61	78	260	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	11	12	12	12	11	12	12	12	12	12
Storage Length (ft)	0		165	0		0	125		0	0		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			50			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850					0.981			0.998	
Flt Protected		0.963					0.950			0.950		
Satd. Flow (prot)	0	1701	1501	0	0	0	1678	3405	0	1736	1823	0
Flt Permitted		0.963					0.580			0.438		
Satd. Flow (perm)	0	1701	1501	0	0	0	1024	3405	0	800	1823	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			125					25			1	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		348			331			912			542	
Travel Time (s)		9.5			9.0			17.8			10.6	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	7	2	11	0	0	0	40	472	69	88	292	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	9	11	0	0	0	40	541	0	88	295	0
Turn Type	Perm	NA	Prot				pm+pt	NA		pm+pt	NA	
Protected Phases		4	4				1	6		5	2	
Permitted Phases	4						6			2		
Detector Phase	4	4	4				1	6		5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0				5.0	15.0		5.0	15.0	
Minimum Split (s)	19.1	19.1	19.1				9.0	22.0		9.0	22.0	
Total Split (s)	20.0	20.0	20.0				19.0	31.0		19.0	31.0	
Total Split (%)	28.6%	28.6%	28.6%				27.1%	44.3%		27.1%	44.3%	
Yellow Time (s)	3.2	3.2	3.2				3.0	4.1		3.0	4.1	
All-Red Time (s)	1.9	1.9	1.9				1.0	2.9		1.0	2.9	
Lost Time Adjust (s)		0.0	0.0				0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.1	5.1				4.0	7.0		4.0	7.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None	None				None	C-Max		None	C-Max	
Act Effct Green (s)		8.4	8.4				56.3	50.5		57.7	54.0	
Actuated g/C Ratio		0.12	0.12				0.80	0.72		0.82	0.77	
v/c Ratio		0.04	0.04				0.05	0.22		0.12	0.21	
Control Delay		25.8	0.2				2.7	5.9		1.3	3.5	
Queue Delay		0.0	0.0				0.0	0.0		0.0	0.0	
Total Delay		25.8	0.2				2.7	5.9		1.3	3.5	
LOS		C	A				A	A		A	A	
Approach Delay		11.7						5.6			3.0	
Approach LOS		B						A			A	
Queue Length 50th (ft)		4	0				1	22		0	12	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		14	0				13	99		6	24	
Internal Link Dist (ft)		268			251			832			462	
Turn Bay Length (ft)			165				125					
Base Capacity (vph)		362	417				1014	2465		883	1407	
Starvation Cap Reductn		0	0				0	0		0	0	
Spillback Cap Reductn		0	0				0	0		0	0	
Storage Cap Reductn		0	0				0	0		0	0	
Reduced v/c Ratio		0.02	0.03				0.04	0.22		0.10	0.21	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 11 (16%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.22			
Intersection Signal Delay: 4.7		Intersection LOS: A	
Intersection Capacity Utilization 37.3%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 102: Chamberlain Hwy & Coldspring Ave/I-691 WB Entrance Ramp



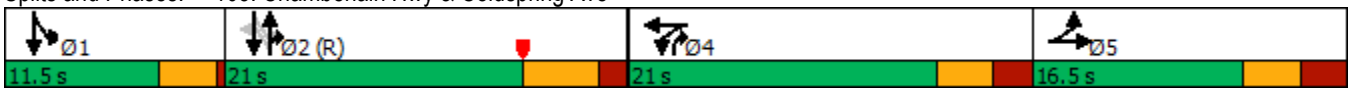


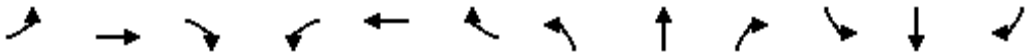
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	6	3	19	15	4	2	360	59	3	320	24
Future Volume (vph)	2	6	3	19	15	4	2	360	59	3	320	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	12	12	12	12	12	11	11	12
Storage Length (ft)	150		0	0		0	0		0	250		0
Storage Lanes	1		0	1		0	0		1	1		0
Taper Length (ft)	75			25			25			60		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.950			0.973				0.850		0.990	
Flt Protected	0.950			0.950	0.995					0.950		
Satd. Flow (prot)	1736	1736	0	1594	1680	0	0	1827	1553	1678	1748	0
Flt Permitted	0.950			0.950	0.995			0.999		0.476		
Satd. Flow (perm)	1736	1736	0	1594	1680	0	0	1825	1553	841	1748	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			4				94		7	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		372			289			542			548	
Travel Time (s)		10.1			7.9			10.6			10.7	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	2	6	3	20	16	4	2	375	61	3	333	25
Shared Lane Traffic (%)				10%								
Lane Group Flow (vph)	2	9	0	18	22	0	0	377	61	3	358	0
Turn Type	Split	NA		Split	NA		Perm	NA	pt+ov	D.P+P	NA	
Protected Phases	5	5		4	4			2	2 4	1	1 2	
Permitted Phases							2			2		
Detector Phase	5	5		4	4		2	2	2 4	1	1 2	
Switch Phase												
Minimum Initial (s)	7.0	7.0		9.0	9.0		15.0	15.0		5.0		
Minimum Split (s)	12.5	12.5		14.0	14.0		20.5	20.5		8.5		
Total Split (s)	16.5	16.5		21.0	21.0		21.0	21.0		11.5		
Total Split (%)	23.6%	23.6%		30.0%	30.0%		30.0%	30.0%		16.4%		
Yellow Time (s)	3.0	3.0		3.0	3.0		3.9	3.9		3.0		
All-Red Time (s)	2.5	2.5		2.0	2.0		1.6	1.6		0.5		
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0		
Total Lost Time (s)	5.5	5.5		5.0	5.0			5.5		3.5		
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Recall Mode	None	None		None	None		C-Max	C-Max		None		
Act Effct Green (s)	7.0	7.0		9.0	9.0			40.7	54.7	52.1	57.0	
Actuated g/C Ratio	0.10	0.10		0.13	0.13			0.58	0.78	0.74	0.81	
v/c Ratio	0.01	0.05		0.09	0.10			0.36	0.05	0.00	0.25	
Control Delay	28.5	25.4		28.1	24.9			12.0	0.2	5.0	4.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0	0.0	0.0	
Total Delay	28.5	25.4		28.1	24.9			12.0	0.2	5.0	4.3	
LOS	C	C		C	C			B	A	A	A	
Approach Delay		26.0			26.4			10.4			4.3	
Approach LOS		C			C			B			A	
Queue Length 50th (ft)	1	2		7	7			60	0	0	35	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	7	15		25	27			#269	0	4	123	
Internal Link Dist (ft)		292			209			462			468	
Turn Bay Length (ft)	150									250		
Base Capacity (vph)	272	275		364	387			1060	1322	765	1418	
Starvation Cap Reductn	0	0		0	0			0	0	0	0	
Spillback Cap Reductn	0	0		0	0			0	0	0	0	
Storage Cap Reductn	0	0		0	0			0	0	0	0	
Reduced v/c Ratio	0.01	0.03		0.05	0.06			0.36	0.05	0.00	0.25	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBSB, Start of Yellow, Master Intersection			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.36			
Intersection Signal Delay: 8.8		Intersection LOS: A	
Intersection Capacity Utilization 49.1%		ICU Level of Service A	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 103: Chamberlain Hwy & Coldspring Ave





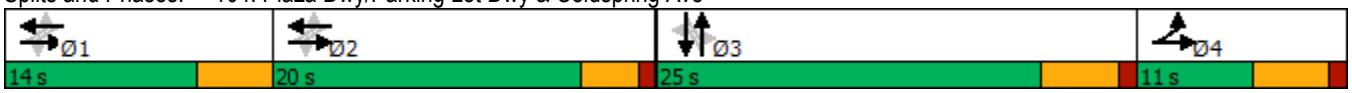
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	61	7	7	34	0	4	0	4	0	0	0
Future Volume (vph)	0	61	7	7	34	0	4	0	4	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	11	10	11	11	12	12	12	12	12	12
Storage Length (ft)	100		0	225		0	75		0	0		0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (ft)	75			100			50			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.985						0.850				
Flt Protected				0.950			0.950					
Satd. Flow (prot)	1722	3337	0	1636	3388	0	1752	1568	0	0	1845	0
Flt Permitted				0.696								
Satd. Flow (perm)	1722	3337	0	1198	3388	0	1845	1568	0	0	1845	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9						916				
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		289			593			342			196	
Travel Time (s)		7.9			16.2			9.3			5.3	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	81	9	9	45	0	5	0	5	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	90	0	9	45	0	5	5	0	0	0	0
Turn Type	D.P+P	NA		Perm	NA		Perm	NA				
Protected Phases	4	1 2 4			1 2			3			3	
Permitted Phases	1 2			1 2			3			3		
Detector Phase	4	1 2 4		2	2		3	3		3	3	
Switch Phase												
Minimum Initial (s)	5.0						6.0	6.0		6.0	6.0	
Minimum Split (s)	10.0						20.0	20.0		20.0	20.0	
Total Split (s)	11.0						25.0	25.0		25.0	25.0	
Total Split (%)	15.7%						35.7%	35.7%		35.7%	35.7%	
Yellow Time (s)	4.0						4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0						1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0						0.0	0.0			0.0	
Total Lost Time (s)	5.0						5.0	5.0			5.0	
Lead/Lag	Lag						Lead	Lead		Lead	Lead	
Lead-Lag Optimize?	Yes						Yes	Yes		Yes	Yes	
Recall Mode	Max						None	None		None	None	
Act Effct Green (s)		33.3		18.7	18.7		6.1	6.1				
Actuated g/C Ratio		0.93		0.52	0.52		0.17	0.17				
v/c Ratio		0.03		0.01	0.03		0.02	0.00				
Control Delay		1.1		6.0	5.5		14.8	0.0				
Queue Delay		0.0		0.0	0.0		0.0	0.0				
Total Delay		1.1		6.0	5.5		14.8	0.0				
LOS		A		A	A		B	A				
Approach Delay		1.1			5.6			7.4				
Approach LOS		A			A			A				

Lane Group	Ø1	Ø2
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	2
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	10.0	2.0
Minimum Split (s)	14.0	6.0
Total Split (s)	14.0	20.0
Total Split (%)	20%	29%
Yellow Time (s)	4.0	3.0
All-Red Time (s)	0.0	1.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes
Recall Mode	Max	Min
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		0		1	1		1	0				
Queue Length 95th (ft)		5		6	8		7	0				
Internal Link Dist (ft)		209			513			262			116	
Turn Bay Length (ft)				225			75					
Base Capacity (vph)		3010		1021	2888		1048	1286				
Starvation Cap Reductn		0		0	0		0	0				
Spillback Cap Reductn		0		0	0		0	0				
Storage Cap Reductn		0		0	0		0	0				
Reduced v/c Ratio		0.03		0.01	0.02		0.00	0.00				

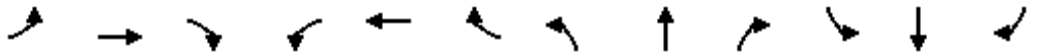
Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 35.7			
Natural Cycle: 50			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.03			
Intersection Signal Delay: 3.1		Intersection LOS: A	
Intersection Capacity Utilization 20.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 104: Plaza Dwy/Parking Lot Dwy & Coldspring Ave



Lane Group	Ø1	Ø2
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

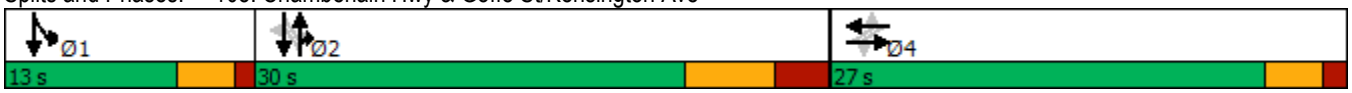


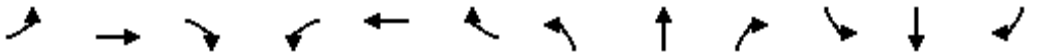
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	1	170	0	71	1	230	136	83	180	1
Future Volume (vph)	0	0	1	170	0	71	1	230	136	83	180	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	11	10	12	11	12
Storage Length (ft)	0		0	0		0	0		0	175		0
Storage Lanes	0		0	0		0	0		1	1		0
Taper Length (ft)	25			25			25			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865			0.960				0.850		0.999	
Flt Protected					0.966					0.950		
Satd. Flow (prot)	0	1565	0	0	1678	0	0	1749	1436	1719	1747	0
Flt Permitted					0.790			0.999		0.609		
Satd. Flow (perm)	0	1565	0	0	1372	0	0	1747	1436	1102	1747	0
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		709			134				142			
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		407			1782			548			604	
Travel Time (s)		11.1			34.7			10.7			11.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	0	0	1	177	0	74	1	240	142	86	188	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1	0	0	251	0	0	241	142	86	189	0
Turn Type		NA		Perm	NA		Perm	NA	Prot	D.P+P	NA	
Protected Phases		4			4			2	2	1	1 2	
Permitted Phases	4			4			2			2		
Detector Phase	4	4		4	4		2	2	2	1	1 2	
Switch Phase												
Minimum Initial (s)	9.0	9.0		9.0	9.0		15.0	15.0	15.0	6.0		
Minimum Split (s)	21.4	21.4		21.4	21.4		22.6	22.6	22.6	10.0		
Total Split (s)	27.0	27.0		27.0	27.0		30.0	30.0	30.0	13.0		
Total Split (%)	38.6%	38.6%		38.6%	38.6%		42.9%	42.9%	42.9%	18.6%		
Yellow Time (s)	3.0	3.0		3.0	3.0		4.7	4.7	4.7	3.0		
All-Red Time (s)	1.4	1.4		1.4	1.4		2.9	2.9	2.9	1.0		
Lost Time Adjust (s)		0.0			0.0			0.0	0.0	0.0		
Total Lost Time (s)		4.4			4.4			7.6	7.6	4.0		
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None		Max	Max	Max	None		
Act Effct Green (s)		11.3			11.3			22.5	22.5	33.1	37.1	
Actuated g/C Ratio		0.20			0.20			0.40	0.40	0.58	0.65	
v/c Ratio		0.00			0.66			0.35	0.22	0.12	0.17	
Control Delay		0.0			19.4			15.0	4.1	4.9	4.9	
Queue Delay		0.0			0.0			0.0	0.0	0.0	0.0	
Total Delay		0.0			19.4			15.0	4.1	4.9	4.9	
LOS		A			B			B	A	A	A	
Approach Delay					19.4			10.9			4.9	
Approach LOS					B			B			A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		0			34			50	0	7	17	
Queue Length 95th (ft)		0			101			127	32	28	55	
Internal Link Dist (ft)		327			1702			468			524	
Turn Bay Length (ft)										175		
Base Capacity (vph)		1051			629			692	654	781	1104	
Starvation Cap Reductn		0			0			0	0	0	0	
Spillback Cap Reductn		0			0			0	0	0	0	
Storage Cap Reductn		0			0			0	0	0	0	
Reduced v/c Ratio		0.00			0.40			0.35	0.22	0.11	0.17	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 56.8			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 11.4		Intersection LOS: B	
Intersection Capacity Utilization 55.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 105: Chamberlain Hwy & Goffe St/Kensington Ave





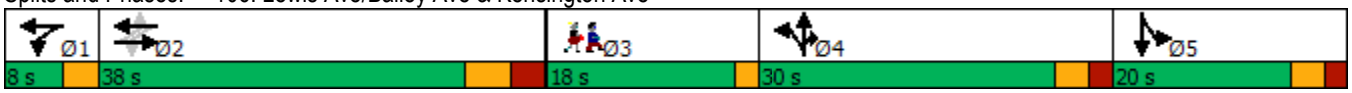
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	117	121	51	190	3	67	0	41	6	12	7
Future Volume (vph)	5	117	121	51	190	3	67	0	41	6	12	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	11	12	11	12	12	12
Storage Length (ft)	0		0	0		0	300		300	0		0
Storage Lanes	0		0	0		0	0		1	0		0
Taper Length (ft)	25			25			50			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.933			0.998				0.850		0.964	
Flt Protected		0.999			0.990			0.950			0.989	
Satd. Flow (prot)	0	1671	0	0	1771	0	0	1703	1473	0	1709	0
Flt Permitted		0.991			0.922			0.950			0.989	
Satd. Flow (perm)	0	1657	0	0	1649	0	0	1703	1473	0	1709	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									134		7	
Link Speed (mph)		30			30			10			25	
Link Distance (ft)		1115			277			538			351	
Travel Time (s)		25.3			6.3			36.7			9.6	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Adj. Flow (vph)	5	122	126	53	198	3	70	0	43	6	13	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	253	0	0	254	0	0	70	43	0	26	0
Turn Type	Perm	NA		pm+pt	NA		Split	NA	Prot	Split	NA	
Protected Phases		2		1	1 2		4	4	4	5	5	
Permitted Phases	2			1 2								
Detector Phase	2	2		1	1 2		4	4	4	5	5	
Switch Phase												
Minimum Initial (s)	15.0	15.0		5.0			9.0	9.0	9.0	7.0	7.0	
Minimum Split (s)	22.0	22.0		8.0			14.0	14.0	14.0	12.0	12.0	
Total Split (s)	38.0	38.0		8.0			30.0	30.0	30.0	20.0	20.0	
Total Split (%)	33.3%	33.3%		7.0%			26.3%	26.3%	26.3%	17.5%	17.5%	
Yellow Time (s)	4.0	4.0		3.0			3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	3.0	3.0		0.0			2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		0.0						0.0	0.0		0.0	
Total Lost Time (s)		7.0						5.0	5.0		5.0	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag			
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes			
Recall Mode	Min	Min		Max			None	None	None	None	None	
Act Effct Green (s)		17.6			27.6			10.3	10.3		7.9	
Actuated g/C Ratio		0.36			0.56			0.21	0.21		0.16	
v/c Ratio		0.43			0.27			0.20	0.10		0.09	
Control Delay		19.2			9.9			23.7	0.5		22.6	
Queue Delay		0.0			0.0			0.0	0.0		0.0	
Total Delay		19.2			9.9			23.7	0.5		22.6	
LOS		B			A			C	A		C	
Approach Delay		19.2			9.9			14.8			22.6	
Approach LOS		B			A			B			C	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	18.0
Total Split (s)	18.0
Total Split (%)	16%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		48			23			15	0		4	
Queue Length 95th (ft)		194			150			73	0		34	
Internal Link Dist (ft)		1035			197			458			271	
Turn Bay Length (ft)									300			
Base Capacity (vph)		1154			1399			1022	937		586	
Starvation Cap Reductn		0			0			0	0		0	
Spillback Cap Reductn		0			0			0	0		0	
Storage Cap Reductn		0			0			0	0		0	
Reduced v/c Ratio		0.22			0.18			0.07	0.05		0.04	

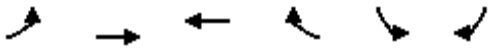
Intersection Summary			
Area Type:	Other		
Cycle Length: 114			
Actuated Cycle Length: 49.2			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.43			
Intersection Signal Delay: 14.9		Intersection LOS: B	
Intersection Capacity Utilization 50.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 106: Lewis Ave/Bailey Ave & Kensington Ave

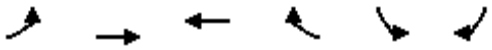


Lane Group	Ø3
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



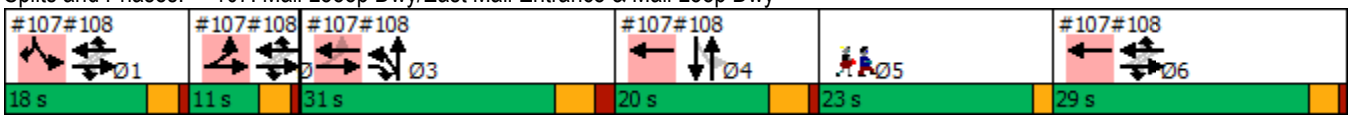
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø3	Ø4	Ø5	Ø6
Lane Configurations										
Traffic Volume (vph)	1	23	41	72	68	6				
Future Volume (vph)	1	23	41	72	68	6				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900				
Storage Length (ft)	0			0	0	100				
Storage Lanes	1			0	1	1				
Taper Length (ft)	25				25					
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00				
Frt			0.904			0.850				
Flt Protected	0.950				0.950					
Satd. Flow (prot)	1736	1827	3138	0	1736	1553				
Flt Permitted	0.656				0.950					
Satd. Flow (perm)	1198	1827	3138	0	1736	1553				
Right Turn on Red				Yes		Yes				
Satd. Flow (RTOR)			97			8				
Link Speed (mph)		25	25		25					
Link Distance (ft)		241	224		233					
Travel Time (s)		6.6	6.1		6.4					
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74				
Adj. Flow (vph)	1	31	55	97	92	8				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	1	31	152	0	92	8				
Turn Type	custom	NA	NA		Prot	Prot				
Protected Phases	2	2 3	3 4 6		1	1	3	4	5	6
Permitted Phases	3									
Detector Phase	2	2 3	3 4 6		1	1				
Switch Phase										
Minimum Initial (s)	4.0				6.0	6.0	16.0	6.0	1.0	6.0
Minimum Split (s)	8.0				10.0	10.0	22.0	11.0	23.0	10.0
Total Split (s)	11.0				18.0	18.0	31.0	20.0	23.0	29.0
Total Split (%)	8.3%				13.6%	13.6%	23%	15%	17%	22%
Yellow Time (s)	3.0				3.0	3.0	4.0	4.0	2.0	3.0
All-Red Time (s)	1.0				1.0	1.0	2.0	1.0	0.0	1.0
Lost Time Adjust (s)	0.0				0.0	0.0				
Total Lost Time (s)	4.0				4.0	4.0				
Lead/Lag	Lag				Lead	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes				Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None				None	None	Max	None	None	None
Act Effct Green (s)	32.5	35.7	50.2		9.2	9.2				
Actuated g/C Ratio	0.40	0.44	0.62		0.11	0.11				
v/c Ratio	0.00	0.04	0.08		0.47	0.04				
Control Delay	20.0	18.0	0.1		46.1	22.7				
Queue Delay	0.0	0.0	0.0		0.0	0.0				
Total Delay	20.0	18.0	0.2		46.1	22.7				
LOS	B	B	A		D	C				
Approach Delay		18.1	0.2		44.3					
Approach LOS		B	A		D					
Queue Length 50th (ft)	0	8	0		42	0				
Queue Length 95th (ft)	3	31	1		95	11				

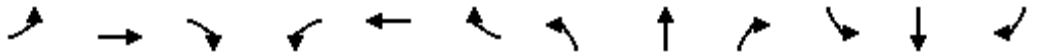


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø3	Ø4	Ø5	Ø6
Internal Link Dist (ft)		161	144		153					
Turn Bay Length (ft)						100				
Base Capacity (vph)	541	764	2660		310	284				
Starvation Cap Reductn	0	0	1132		0	0				
Spillback Cap Reductn	0	0	0		0	0				
Storage Cap Reductn	0	0	0		0	0				
Reduced v/c Ratio	0.00	0.04	0.10		0.30	0.03				

Intersection Summary			
Area Type:	Other		
Cycle Length: 132			
Actuated Cycle Length: 81.5			
Natural Cycle: 85			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.47			
Intersection Signal Delay: 17.7		Intersection LOS: B	
Intersection Capacity Utilization 26.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 107: Mall Looop Dwy/East Mall Entrance & Mall Loop Dwy





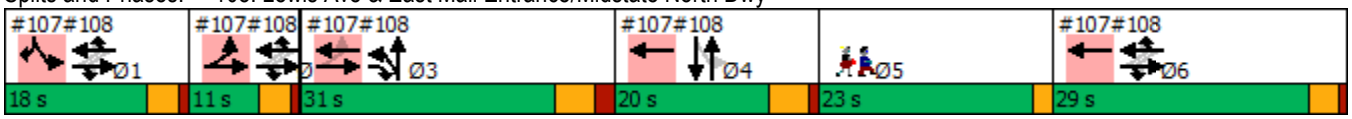
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	13	69	3	3	0	93	98	16	14	145	17
Future Volume (vph)	9	13	69	3	3	0	93	98	16	14	145	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	450		0	75		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25			25			105			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95
Frt			0.850					0.979			0.984	
Flt Protected		0.980			0.976		0.950			0.950		
Satd. Flow (prot)	0	1773	1538	0	1766	1810	3335	1772	0	1719	3383	0
Flt Permitted		0.940			0.950		0.950			0.676		
Satd. Flow (perm)	0	1701	1538	0	1719	1810	3335	1772	0	1223	3383	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			77					7			8	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		224			382			746			538	
Travel Time (s)		6.1			10.4			20.3			14.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	10	14	77	3	3	0	103	109	18	16	161	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	24	77	0	6	0	103	127	0	16	180	0
Turn Type	Perm	NA	pt+ov	Perm	NA	Prot	Prot	NA		Perm	NA	
Protected Phases		1 2 6	1 2 3 6		1 2 6	1 2 6	3	3 4			4	
Permitted Phases	1 2 6			1 2 6						4		
Detector Phase	1 2 6	1 2 6	1 2 3 6	1 2 6	1 2 6	1 2 6	3	3 4		4	4	
Switch Phase												
Minimum Initial (s)							16.0			6.0	6.0	
Minimum Split (s)							22.0			11.0	11.0	
Total Split (s)							31.0			20.0	20.0	
Total Split (%)							23.5%			15.2%	15.2%	
Yellow Time (s)							4.0			4.0	4.0	
All-Red Time (s)							2.0			1.0	1.0	
Lost Time Adjust (s)							0.0			0.0	0.0	
Total Lost Time (s)							6.0			5.0	5.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode							Max			None	None	
Act Effct Green (s)		29.6	59.6		29.6		26.0	40.5		9.3	9.3	
Actuated g/C Ratio		0.36	0.73		0.36		0.32	0.50		0.11	0.11	
v/c Ratio		0.04	0.07		0.01		0.10	0.14		0.12	0.46	
Control Delay		12.2	0.1		21.8		25.3	14.5		39.5	38.7	
Queue Delay		0.0	0.4		0.0		0.0	0.0		0.0	0.0	
Total Delay		12.2	0.5		21.8		25.3	14.5		39.5	38.7	
LOS		B	A		C		C	B		D	D	
Approach Delay		3.3			21.8			19.3			38.8	
Approach LOS		A			C			B			D	
Queue Length 50th (ft)		3	0		2		17	29		7	41	

Lane Group	Ø1	Ø2	Ø5	Ø6
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)				
Link Distance (ft)				
Travel Time (s)				
Peak Hour Factor				
Heavy Vehicles (%)				
Adj. Flow (vph)				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	2	5	6
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	6.0	4.0	1.0	6.0
Minimum Split (s)	10.0	8.0	23.0	10.0
Total Split (s)	18.0	11.0	23.0	29.0
Total Split (%)	14%	8%	17%	22%
Yellow Time (s)	3.0	3.0	2.0	3.0
All-Red Time (s)	1.0	1.0	0.0	1.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (ft)				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		10	0		13		55	100		32	98	
Internal Link Dist (ft)		144			302			666			458	
Turn Bay Length (ft)							450			75		
Base Capacity (vph)		651	1117		658		1064	1021		234	654	
Starvation Cap Reductn		0	755		0		0	0		0	0	
Spillback Cap Reductn		0	0		0		0	0		0	0	
Storage Cap Reductn		0	0		0		0	0		0	0	
Reduced v/c Ratio		0.04	0.21		0.01		0.10	0.12		0.07	0.28	

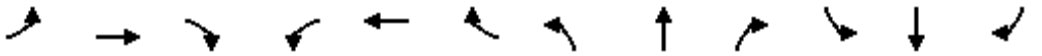
Intersection Summary			
Area Type:	Other		
Cycle Length: 132			
Actuated Cycle Length: 81.5			
Natural Cycle: 85			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.47			
Intersection Signal Delay: 23.5		Intersection LOS: C	
Intersection Capacity Utilization 38.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 108: Lewis Ave & East Mall Entrance/Midstate North Dwy



Lane Group	Ø1	Ø2	Ø5	Ø6
Queue Length 95th (ft)				
Internal Link Dist (ft)				
Turn Bay Length (ft)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	89	160	170	85	0	48	0	70	73	59	158	0
Future Volume (vph)	89	160	170	85	0	48	0	70	73	59	158	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		55	0		0	300		0	75		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			275			105		
Lane Util. Factor	0.95	0.95	1.00	0.95	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.886			0.924				
Flt Protected	0.950	0.997		0.950	0.988					0.950		
Satd. Flow (prot)	1649	1730	1553	1649	1519	0	0	3207	0	1736	3471	0
Flt Permitted	0.950	0.997		0.950	0.988					0.652		
Satd. Flow (perm)	1649	1730	1553	1649	1519	0	0	3207	0	1191	3471	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			187		110			80				
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		434			274			827			746	
Travel Time (s)		11.8			7.5			22.6			20.3	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	98	176	187	93	0	53	0	77	80	65	174	0
Shared Lane Traffic (%)	10%			18%								
Lane Group Flow (vph)	88	186	187	76	70	0	0	157	0	65	174	0
Turn Type	Split	NA	Perm	Split	NA			NA		Perm	NA	
Protected Phases	4	4		5	5			2			2	
Permitted Phases			4							2		
Detector Phase	4	4	4	5	5			2		2	2	
Switch Phase												
Minimum Initial (s)	9.0	9.0	9.0	7.0	7.0			15.0		15.0	15.0	
Minimum Split (s)	28.0	28.0	28.0	12.0	12.0			21.0		21.0	21.0	
Total Split (s)	33.0	33.0	33.0	20.0	20.0			26.0		26.0	26.0	
Total Split (%)	41.8%	41.8%	41.8%	25.3%	25.3%			32.9%		32.9%	32.9%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0			4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0			2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0			6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None			Max		Max	Max	
Act Effct Green (s)	11.0	11.0	11.0	7.9	7.9			20.4		20.4	20.4	
Actuated g/C Ratio	0.21	0.21	0.21	0.15	0.15			0.39		0.39	0.39	
v/c Ratio	0.25	0.51	0.39	0.31	0.22			0.12		0.14	0.13	
Control Delay	20.6	25.2	6.5	25.5	4.1			7.6		14.1	12.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0		0.0	0.0	
Total Delay	20.6	25.2	6.5	25.5	4.1			7.6		14.1	12.9	
LOS	C	C	A	C	A			A		B	B	
Approach Delay		16.7			15.3			7.6			13.2	
Approach LOS		B			B			A			B	
Queue Length 50th (ft)	25	56	0	23	0			7		13	18	
Queue Length 95th (ft)	61	115	42	61	16			27		42	43	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		354			194			747			666	
Turn Bay Length (ft)			55							75		
Base Capacity (vph)	897	942	930	480	521			1295		463	1350	
Starvation Cap Reductn	0	0	0	0	0			0		0	0	
Spillback Cap Reductn	0	0	0	0	0			0		0	0	
Storage Cap Reductn	0	0	0	0	0			0		0	0	
Reduced v/c Ratio	0.10	0.20	0.20	0.16	0.13			0.12		0.14	0.13	

Intersection Summary			
Area Type:	Other		
Cycle Length: 79			
Actuated Cycle Length: 52.5			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.51			
Intersection Signal Delay: 14.2		Intersection LOS: B	
Intersection Capacity Utilization 57.6%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 109: Lewis Ave & I-691 WB Exit Ramp/Midstate South Dwy

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø2	Ø3	Ø4
Lane Configurations									
Traffic Volume (vph)	0	0	143	379	138	275			
Future Volume (vph)	0	0	143	379	138	275			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Storage Length (ft)	0	0		140	175				
Storage Lanes	0	0		1	1				
Taper Length (ft)	25				140				
Lane Util. Factor	1.00	1.00	1.00	1.00	0.97	1.00			
Frt				0.850					
Flt Protected					0.950				
Satd. Flow (prot)	0	0	1827	1553	3367	1827			
Flt Permitted					0.950				
Satd. Flow (perm)	0	0	1827	1553	3367	1827			
Right Turn on Red		Yes		Yes					
Satd. Flow (RTOR)				391					
Link Speed (mph)	25		25			25			
Link Distance (ft)	400		182			827			
Travel Time (s)	10.9		5.0			22.6			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97			
Adj. Flow (vph)	0	0	147	391	142	284			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	0	0	147	391	142	284			
Turn Type			NA	Perm	Prot	NA			
Protected Phases			2 4		1	1 2	2	3	4
Permitted Phases				2 4					
Detector Phase			2 4	2 4	1	1 2			
Switch Phase									
Minimum Initial (s)					7.0		15.0	1.0	7.0
Minimum Split (s)					12.0		21.0	20.0	11.0
Total Split (s)					30.0		31.0	20.0	19.0
Total Split (%)					30.0%		31%	20%	19%
Yellow Time (s)					3.0		4.0	2.0	3.0
All-Red Time (s)					2.0		2.0	0.0	1.0
Lost Time Adjust (s)					0.0				
Total Lost Time (s)					5.0				
Lead/Lag					Lead		Lag	Lead	Lag
Lead-Lag Optimize?					Yes		Yes	Yes	Yes
Recall Mode					None		Max	None	None
Act Effct Green (s)			36.1	36.1	7.9	38.9			
Actuated g/C Ratio			0.66	0.66	0.14	0.71			
v/c Ratio			0.12	0.34	0.29	0.22			
Control Delay			4.1	1.4	22.7	3.3			
Queue Delay			0.0	0.0	0.0	0.0			
Total Delay			4.1	1.4	22.7	3.3			
LOS			A	A	C	A			
Approach Delay			2.2			9.7			
Approach LOS			A			A			
Queue Length 50th (ft)			14	0	21	23			
Queue Length 95th (ft)			34	23	42	44			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø2	Ø3	Ø4
Internal Link Dist (ft)	320		102			747			
Turn Bay Length (ft)				140	175				
Base Capacity (vph)			1462	1320	1531	1292			
Starvation Cap Reductn			0	0	0	0			
Spillback Cap Reductn			0	0	0	0			
Storage Cap Reductn			0	0	0	0			
Reduced v/c Ratio			0.10	0.30	0.09	0.22			

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 55			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.34			
Intersection Signal Delay: 5.5		Intersection LOS: A	
Intersection Capacity Utilization 38.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 110: Lewis Ave & I-691 EB Entrance Ramp

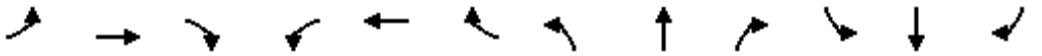
Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	222	5	20	240	2	15
Future Vol, veh/h	222	5	20	240	2	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	86	86	75	75
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	261	6	23	279	3	20

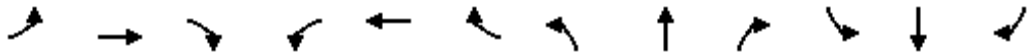
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	267	0	589	264
Stage 1	-	-	-	-	264	-
Stage 2	-	-	-	-	325	-
Critical Hdwy	-	-	4.14	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	-	-	2.236	-	3.536	3.336
Pot Cap-1 Maneuver	-	-	1285	-	467	770
Stage 1	-	-	-	-	776	-
Stage 2	-	-	-	-	728	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1285	-	457	770
Mov Cap-2 Maneuver	-	-	-	-	457	-
Stage 1	-	-	-	-	776	-
Stage 2	-	-	-	-	713	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	10.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	457	770	-	-	1285	-
HCM Lane V/C Ratio	0.006	0.026	-	-	0.018	-
HCM Control Delay (s)	12.9	9.8	-	-	7.9	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0	0.1	-	-	0.1	-



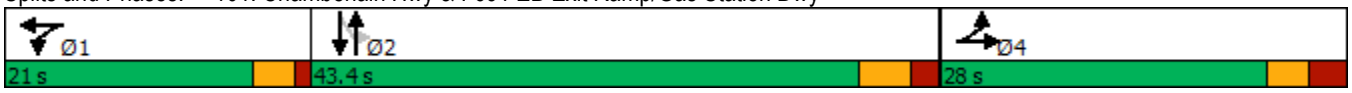
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	247	10	28	6	0	25	0	287	14	7	272	0
Future Volume (vph)	247	10	28	6	0	25	0	287	14	7	272	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	11	12	12	12	12
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.970			0.893			0.993				
Flt Protected	0.950	0.965			0.990						0.999	
Satd. Flow (prot)	1633	1609	0	0	1600	0	0	3300	0	0	1808	0
Flt Permitted	0.950	0.965			0.990						0.988	
Satd. Flow (perm)	1633	1609	0	0	1600	0	0	3300	0	0	1788	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			99			6				
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		333			117			418			912	
Travel Time (s)		9.1			3.2			8.1			17.8	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	271	11	31	7	0	27	0	315	15	8	299	0
Shared Lane Traffic (%)	42%											
Lane Group Flow (vph)	157	156	0	0	34	0	0	330	0	0	307	0
Turn Type	Split	NA		Split	NA			NA		Perm	NA	
Protected Phases	4	4		1	1			2			2	
Permitted Phases										2		
Detector Phase	4	4		1	1			2		2	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0			15.0		15.0	15.0	
Minimum Split (s)	12.7	12.7		21.0	21.0			20.7		20.7	20.7	
Total Split (s)	28.0	28.0		21.0	21.0			43.4		43.4	43.4	
Total Split (%)	30.3%	30.3%		22.7%	22.7%			47.0%		47.0%	47.0%	
Yellow Time (s)	3.0	3.0		3.0	3.0			3.6		3.6	3.6	
All-Red Time (s)	2.7	2.7		1.0	1.0			2.1		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	
Total Lost Time (s)	5.7	5.7			4.0			5.7			5.7	
Lead/Lag				Lead	Lead			Lag		Lag	Lag	
Lead-Lag Optimize?				Yes	Yes			Yes		Yes	Yes	
Recall Mode	None	None		None	None			Min		Min	Min	
Act Effct Green (s)	9.7	9.7			7.5			17.8			17.8	
Actuated g/C Ratio	0.23	0.23			0.17			0.41			0.41	
v/c Ratio	0.43	0.42			0.09			0.24			0.42	
Control Delay	20.5	19.1			0.5			10.2			12.9	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	20.5	19.1			0.5			10.2			12.9	
LOS	C	B			A			B			B	
Approach Delay		19.8			0.5			10.2			12.9	
Approach LOS		B			A			B			B	
Queue Length 50th (ft)	26	23			0			18			37	
Queue Length 95th (ft)	103	96			0			66			140	
Internal Link Dist (ft)		253			37			338			832	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)												
Base Capacity (vph)	900	892			729			2870			1555	
Starvation Cap Reductn	0	0			0			0			0	
Spillback Cap Reductn	0	0			0			0			0	
Storage Cap Reductn	0	0			0			0			0	
Reduced v/c Ratio	0.17	0.17			0.05			0.11			0.20	

Intersection Summary			
Area Type:	Other		
Cycle Length: 92.4			
Actuated Cycle Length: 43.1			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.43			
Intersection Signal Delay: 13.8		Intersection LOS: B	
Intersection Capacity Utilization 44.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 101: Chamberlain Hwy & I-691 EB Exit Ramp/Gas Station Dwy

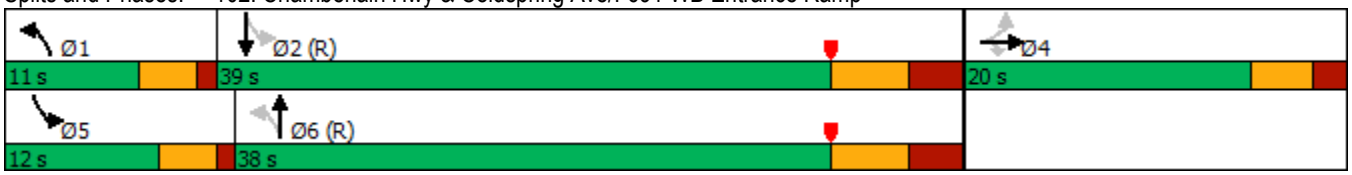


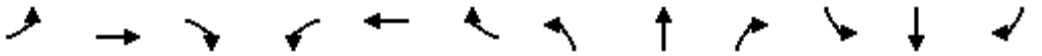
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	2	10	0	0	0	37	492	62	111	272	3
Future Volume (vph)	6	2	10	0	0	0	37	492	62	111	272	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	11	12	12	12	11	12	12	12	12	12
Storage Length (ft)	0		165	0		0	125		0	0		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			50			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850					0.983			0.999	
Flt Protected		0.963					0.950			0.950		
Satd. Flow (prot)	0	1701	1501	0	0	0	1678	3412	0	1736	1825	0
Flt Permitted		0.963					0.572			0.401		
Satd. Flow (perm)	0	1701	1501	0	0	0	1010	3412	0	733	1825	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			125					25			1	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		348			331			912			542	
Travel Time (s)		9.5			9.0			17.8			10.6	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	7	2	11	0	0	0	42	553	70	125	306	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	9	11	0	0	0	42	623	0	125	309	0
Turn Type	Perm	NA	Perm				pm+pt	NA		pm+pt	NA	
Protected Phases		4					1	6		5	2	
Permitted Phases	4		4				6			2		
Detector Phase	4	4	4				1	6		5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0				5.0	15.0		5.0	15.0	
Minimum Split (s)	19.1	19.1	19.1				9.0	22.0		9.0	22.0	
Total Split (s)	20.0	20.0	20.0				11.0	38.0		12.0	39.0	
Total Split (%)	28.6%	28.6%	28.6%				15.7%	54.3%		17.1%	55.7%	
Yellow Time (s)	3.2	3.2	3.2				3.0	4.1		3.0	4.1	
All-Red Time (s)	1.9	1.9	1.9				1.0	2.9		1.0	2.9	
Lost Time Adjust (s)		0.0	0.0				0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.1	5.1				4.0	7.0		4.0	7.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None	None				None	C-Max		None	C-Max	
Act Effct Green (s)		8.4	8.4				56.0	50.3		57.9	54.0	
Actuated g/C Ratio		0.12	0.12				0.80	0.72		0.83	0.77	
v/c Ratio		0.04	0.04				0.05	0.25		0.18	0.22	
Control Delay		25.8	0.2				2.7	6.3		2.3	4.2	
Queue Delay		0.0	0.0				0.0	0.0		0.0	0.0	
Total Delay		25.8	0.2				2.7	6.3		2.3	4.2	
LOS		C	A				A	A		A	A	
Approach Delay		11.7						6.0			3.7	
Approach LOS		B						A			A	
Queue Length 50th (ft)		4	0				0	26		1	24	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		14	0				13	119		17	79	
Internal Link Dist (ft)		268			251			832			462	
Turn Bay Length (ft)			165				125					
Base Capacity (vph)		362	417				896	2456		732	1409	
Starvation Cap Reductn		0	0				0	0		0	0	
Spillback Cap Reductn		0	0				0	0		0	0	
Storage Cap Reductn		0	0				0	0		0	0	
Reduced v/c Ratio		0.02	0.03				0.05	0.25		0.17	0.22	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 11 (16%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.25			
Intersection Signal Delay: 5.2		Intersection LOS: A	
Intersection Capacity Utilization 41.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 102: Chamberlain Hwy & Coldspring Ave/I-691 WB Entrance Ramp



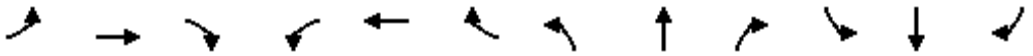


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	18	3	56	22	12	2	369	122	15	328	25
Future Volume (vph)	2	18	3	56	22	12	2	369	122	15	328	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	12	12	12	12	12	11	11	12
Storage Length (ft)	150		0	0		0	0		0	250		0
Storage Lanes	1		0	1		0	0		1	1		0
Taper Length (ft)	75			25			25			60		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.980			0.959				0.850		0.989	
Flt Protected	0.950			0.950	0.988					0.950		
Satd. Flow (prot)	1736	1790	0	1594	1644	0	0	1827	1553	1678	1747	0
Flt Permitted	0.950			0.950	0.988			0.999		0.459		
Satd. Flow (perm)	1736	1790	0	1594	1644	0	0	1825	1553	811	1747	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			13				127		9	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		372			289			542			548	
Travel Time (s)		10.1			7.9			10.6			10.7	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	2	19	3	58	23	13	2	384	127	16	342	26
Shared Lane Traffic (%)				19%								
Lane Group Flow (vph)	2	22	0	47	47	0	0	386	127	16	368	0
Turn Type	Split	NA		Split	NA		Perm	NA	pt+ov	D.P+P	NA	
Protected Phases	5	5		4	4			2	2 4	1	1 2	
Permitted Phases							2			2		
Detector Phase	5	5		4	4		2	2	2 4	1	1 2	
Switch Phase												
Minimum Initial (s)	7.0	7.0		9.0	9.0		15.0	15.0		5.0		
Minimum Split (s)	12.5	12.5		14.0	14.0		20.5	20.5		8.5		
Total Split (s)	12.5	12.5		14.0	14.0		32.5	32.5		11.0		
Total Split (%)	17.9%	17.9%		20.0%	20.0%		46.4%	46.4%		15.7%		
Yellow Time (s)	3.0	3.0		3.0	3.0		3.9	3.9		3.0		
All-Red Time (s)	2.5	2.5		2.0	2.0		1.6	1.6		0.5		
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0		
Total Lost Time (s)	5.5	5.5		5.0	5.0			5.5		3.5		
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Recall Mode	None	None		None	None		C-Max	C-Max		None		
Act Effct Green (s)	7.0	7.0		9.0	9.0			37.3	51.3	46.8	51.0	
Actuated g/C Ratio	0.10	0.10		0.13	0.13			0.53	0.73	0.67	0.73	
v/c Ratio	0.01	0.12		0.23	0.21			0.40	0.11	0.03	0.29	
Control Delay	28.5	27.8		30.6	24.2			12.9	0.3	6.0	6.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0	0.0	0.0	
Total Delay	28.5	27.8		30.6	24.2			12.9	0.3	6.0	6.2	
LOS	C	C		C	C			B	A	A	A	
Approach Delay		27.9			27.4			9.8			6.2	
Approach LOS		C			C			A			A	
Queue Length 50th (ft)	1	8		20	13			61	0	1	36	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	7	27		49	44			133	1	10	126	
Internal Link Dist (ft)		292			209			462			468	
Turn Bay Length (ft)	150									250		
Base Capacity (vph)	173	181		204	222			972	1172	646	1269	
Starvation Cap Reductn	0	0		0	0			0	0	0	0	
Spillback Cap Reductn	0	0		0	0			0	0	0	0	
Storage Cap Reductn	0	0		0	0			0	0	0	0	
Reduced v/c Ratio	0.01	0.12		0.23	0.21			0.40	0.11	0.02	0.29	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBSB, Start of Yellow, Master Intersection			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.40			
Intersection Signal Delay: 10.5		Intersection LOS: B	
Intersection Capacity Utilization 49.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 103: Chamberlain Hwy & Coldspring Ave



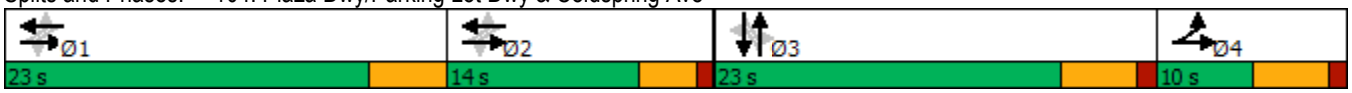
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	148	7	7	87	0	4	0	4	0	0	0
Future Volume (vph)	0	148	7	7	87	0	4	0	4	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	11	10	11	11	12	12	12	12	12	12
Storage Length (ft)	100		0	225		0	75		0	0		0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (ft)	75			100			50			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993						0.850				
Flt Protected				0.950			0.950					
Satd. Flow (prot)	1722	3364	0	1636	3388	0	1752	1568	0	0	1845	0
Flt Permitted				0.623								
Satd. Flow (perm)	1722	3364	0	1073	3388	0	1845	1568	0	0	1845	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9						724				
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		289			593			342			196	
Travel Time (s)		7.9			16.2			9.3			5.3	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	197	9	9	116	0	5	0	5	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	206	0	9	116	0	5	5	0	0	0	0
Turn Type	D.P+P	NA		Perm	NA		Perm	NA				
Protected Phases	4	1 2 4			1 2			3			3	
Permitted Phases	1 2			1 2			3			3		
Detector Phase	4	1 2 4		2	2		3	3		3	3	
Switch Phase												
Minimum Initial (s)	5.0						6.0	6.0		6.0	6.0	
Minimum Split (s)	10.0						20.0	20.0		20.0	20.0	
Total Split (s)	10.0						23.0	23.0		23.0	23.0	
Total Split (%)	14.3%						32.9%	32.9%		32.9%	32.9%	
Yellow Time (s)	4.0						4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0						1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0						0.0	0.0			0.0	
Total Lost Time (s)	5.0						5.0	5.0			5.0	
Lead/Lag	Lag						Lead	Lead		Lead	Lead	
Lead-Lag Optimize?	Yes						Yes	Yes		Yes	Yes	
Recall Mode	Max						None	None		None	None	
Act Effct Green (s)		42.0		28.5	28.5		6.1	6.1				
Actuated g/C Ratio		0.95		0.64	0.64		0.14	0.14				
v/c Ratio		0.06		0.01	0.05		0.02	0.01				
Control Delay		0.8		4.3	3.9		19.5	0.0				
Queue Delay		0.0		0.0	0.0		0.0	0.0				
Total Delay		0.8		4.3	3.9		19.5	0.0				
LOS		A		A	A		B	A				
Approach Delay		0.8			4.0			9.8				
Approach LOS		A			A			A				

Lane Group	Ø1	Ø2
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	2
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	10.0	2.0
Minimum Split (s)	14.0	6.0
Total Split (s)	23.0	14.0
Total Split (%)	33%	20%
Yellow Time (s)	4.0	3.0
All-Red Time (s)	0.0	1.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes
Recall Mode	Max	Min
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		0		1	3		1	0				
Queue Length 95th (ft)		10		5	14		8	0				
Internal Link Dist (ft)		209			513			262			116	
Turn Bay Length (ft)				225			75					
Base Capacity (vph)		3219		807	2548		757	1070				
Starvation Cap Reductn		0		0	0		0	0				
Spillback Cap Reductn		0		0	0		0	0				
Storage Cap Reductn		0		0	0		0	0				
Reduced v/c Ratio		0.06		0.01	0.05		0.01	0.00				

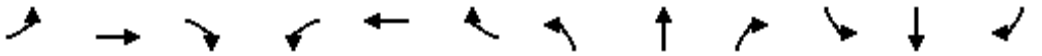
Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 44.4			
Natural Cycle: 50			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.06			
Intersection Signal Delay: 2.2		Intersection LOS: A	
Intersection Capacity Utilization 20.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 104: Plaza Dwy/Parking Lot Dwy & Coldspring Ave



Lane Group	Ø1	Ø2
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

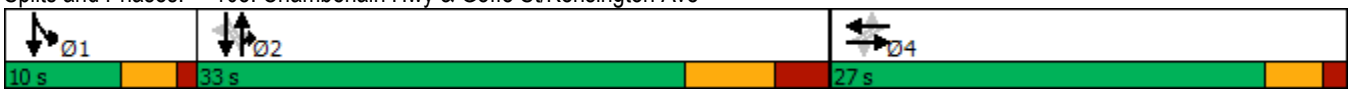


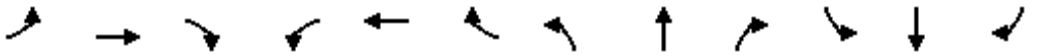
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	1	174	0	77	1	244	139	91	196	1
Future Volume (vph)	0	0	1	174	0	77	1	244	139	91	196	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	11	10	12	11	12
Storage Length (ft)	0		0	0		0	0		0	175		0
Storage Lanes	0		0	0		0	0		1	1		0
Taper Length (ft)	25			25			25			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865			0.959				0.850		0.999	
Flt Protected					0.966					0.950		
Satd. Flow (prot)	0	1565	0	0	1676	0	0	1749	1436	1719	1747	0
Flt Permitted					0.793			0.999		0.601		
Satd. Flow (perm)	0	1565	0	0	1376	0	0	1747	1436	1088	1747	0
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		684			134				145			
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		407			1782			548			604	
Travel Time (s)		11.1			34.7			10.7			11.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	0	0	1	181	0	80	1	254	145	95	204	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1	0	0	261	0	0	255	145	95	205	0
Turn Type		NA		Perm	NA		Perm	NA	Prot	D.P+P	NA	
Protected Phases		4			4			2	2	1	1 2	
Permitted Phases	4			4			2			2		
Detector Phase	4	4		4	4		2	2	2	1	1 2	
Switch Phase												
Minimum Initial (s)	9.0	9.0		9.0	9.0		15.0	15.0	15.0	6.0		
Minimum Split (s)	21.4	21.4		21.4	21.4		22.6	22.6	22.6	10.0		
Total Split (s)	27.0	27.0		27.0	27.0		33.0	33.0	33.0	10.0		
Total Split (%)	38.6%	38.6%		38.6%	38.6%		47.1%	47.1%	47.1%	14.3%		
Yellow Time (s)	3.0	3.0		3.0	3.0		4.7	4.7	4.7	3.0		
All-Red Time (s)	1.4	1.4		1.4	1.4		2.9	2.9	2.9	1.0		
Lost Time Adjust (s)		0.0			0.0			0.0	0.0	0.0		
Total Lost Time (s)		4.4			4.4			7.6	7.6	4.0		
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None		Max	Max	Max	None		
Act Effct Green (s)		11.7			11.7			25.5	25.5	35.1	39.2	
Actuated g/C Ratio		0.20			0.20			0.43	0.43	0.59	0.66	
v/c Ratio		0.00			0.69			0.34	0.21	0.13	0.18	
Control Delay		0.0			21.0			13.8	3.6	5.1	5.0	
Queue Delay		0.0			0.0			0.0	0.0	0.0	0.0	
Total Delay		0.0			21.0			13.8	3.6	5.1	5.0	
LOS		A			C			B	A	A	A	
Approach Delay					21.0			10.1			5.0	
Approach LOS					C			B			A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		0			40			54	0	9	20	
Queue Length 95th (ft)		0			106			126	31	31	61	
Internal Link Dist (ft)		327			1702			468			524	
Turn Bay Length (ft)										175		
Base Capacity (vph)		1021			609			751	700	709	1154	
Starvation Cap Reductn		0			0			0	0	0	0	
Spillback Cap Reductn		0			0			0	0	0	0	
Storage Cap Reductn		0			0			0	0	0	0	
Reduced v/c Ratio		0.00			0.43			0.34	0.21	0.13	0.18	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 59.3			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 11.5		Intersection LOS: B	
Intersection Capacity Utilization 57.6%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 105: Chamberlain Hwy & Goffe St/Kensington Ave





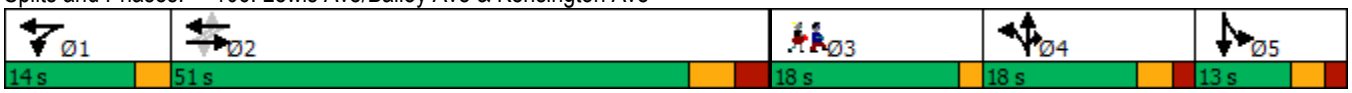
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	131	124	60	213	3	69	1	47	6	14	9
Future Volume (vph)	6	131	124	60	213	3	69	1	47	6	14	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	11	12	11	12	12	12
Storage Length (ft)	0		0	0		0	300		300	0		0
Storage Lanes	0		0	0		0	0		1	0		0
Taper Length (ft)	25			25			50			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.936			0.999				0.850		0.959	
Flt Protected		0.999			0.989			0.953			0.990	
Satd. Flow (prot)	0	1676	0	0	1771	0	0	1708	1473	0	1702	0
Flt Permitted		0.989			0.923			0.953			0.990	
Satd. Flow (perm)	0	1659	0	0	1653	0	0	1708	1473	0	1702	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									134		9	
Link Speed (mph)		30			30			10			25	
Link Distance (ft)		1115			277			538			351	
Travel Time (s)		25.3			6.3			36.7			9.6	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Adj. Flow (vph)	6	136	129	63	222	3	72	1	49	6	15	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	271	0	0	288	0	0	73	49	0	30	0
Turn Type	Perm	NA		pm+pt	NA		Split	NA	Prot	Split	NA	
Protected Phases		2		1	1 2		4	4	4	5	5	
Permitted Phases	2			1 2								
Detector Phase	2	2		1	1 2		4	4	4	5	5	
Switch Phase												
Minimum Initial (s)	15.0	15.0		5.0			9.0	9.0	9.0	7.0	7.0	
Minimum Split (s)	22.0	22.0		8.0			14.0	14.0	14.0	12.0	12.0	
Total Split (s)	51.0	51.0		14.0			18.0	18.0	18.0	13.0	13.0	
Total Split (%)	44.7%	44.7%		12.3%			15.8%	15.8%	15.8%	11.4%	11.4%	
Yellow Time (s)	4.0	4.0		3.0			3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	3.0	3.0		0.0			2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		0.0						0.0	0.0		0.0	
Total Lost Time (s)		7.0						5.0	5.0		5.0	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag			
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes			
Recall Mode	Min	Min		Max			None	None	None	None	None	
Act Effct Green (s)		18.0			34.6			10.3	10.3		7.8	
Actuated g/C Ratio		0.31			0.59			0.18	0.18		0.13	
v/c Ratio		0.53			0.29			0.24	0.13		0.13	
Control Delay		25.8			10.1			30.1	0.7		26.7	
Queue Delay		0.0			0.0			0.0	0.0		0.0	
Total Delay		25.8			10.1			30.1	0.7		26.7	
LOS		C			B			C	A		C	
Approach Delay		25.8			10.1			18.3			26.7	
Approach LOS		C			B			B			C	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	18.0
Total Split (s)	18.0
Total Split (%)	16%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		65			26			19	0		5	
Queue Length 95th (ft)		226			169			84	0		40	
Internal Link Dist (ft)		1035			197			458			271	
Turn Bay Length (ft)									300			
Base Capacity (vph)		1303			1507			418	462		264	
Starvation Cap Reductn		0			0			0	0		0	
Spillback Cap Reductn		0			0			0	0		0	
Storage Cap Reductn		0			0			0	0		0	
Reduced v/c Ratio		0.21			0.19			0.17	0.11		0.11	

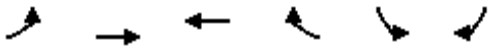
Intersection Summary			
Area Type:	Other		
Cycle Length: 114			
Actuated Cycle Length: 58.6			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.53			
Intersection Signal Delay: 18.2		Intersection LOS: B	
Intersection Capacity Utilization 53.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 106: Lewis Ave/Bailey Ave & Kensington Ave

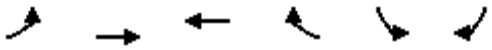


Lane Group	Ø3
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



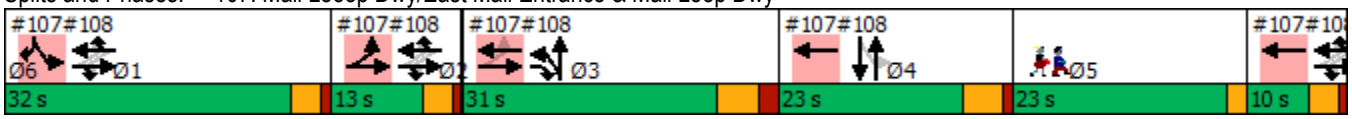
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø3	Ø4	Ø5	Ø6
Lane Configurations										
Traffic Volume (vph)	1	52	87	121	99	6				
Future Volume (vph)	1	52	87	121	99	6				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900				
Storage Length (ft)	0			0	0	100				
Storage Lanes	1			0	1	1				
Taper Length (ft)	25				25					
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00				
Frt			0.913			0.850				
Flt Protected	0.950				0.950					
Satd. Flow (prot)	1736	1827	3169	0	1736	1553				
Flt Permitted	0.579				0.950					
Satd. Flow (perm)	1058	1827	3169	0	1736	1553				
Right Turn on Red				Yes		Yes				
Satd. Flow (RTOR)			164			8				
Link Speed (mph)		25	25		25					
Link Distance (ft)		241	224		233					
Travel Time (s)		6.6	6.1		6.4					
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74				
Adj. Flow (vph)	1	70	118	164	134	8				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	1	70	282	0	134	8				
Turn Type	custom	NA	NA		Prot	Prot				
Protected Phases	2	2 3	3 4 6		1	1	3	4	5	6
Permitted Phases	3									
Detector Phase	2	2 3	3 4 6		1	1				
Switch Phase										
Minimum Initial (s)	4.0				6.0	6.0	16.0	6.0	1.0	6.0
Minimum Split (s)	8.0				10.0	10.0	22.0	11.0	23.0	10.0
Total Split (s)	13.0				32.0	32.0	31.0	23.0	23.0	10.0
Total Split (%)	9.8%				24.2%	24.2%	23%	17%	17%	8%
Yellow Time (s)	3.0				3.0	3.0	4.0	4.0	2.0	3.0
All-Red Time (s)	1.0				1.0	1.0	2.0	1.0	0.0	1.0
Lost Time Adjust (s)	0.0				0.0	0.0				
Total Lost Time (s)	4.0				4.0	4.0				
Lead/Lag	Lag				Lead	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes				Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None				None	None	Max	None	None	None
Act Effct Green (s)	34.7	38.8	51.0		11.6	11.6				
Actuated g/C Ratio	0.39	0.44	0.58		0.13	0.13				
v/c Ratio	0.00	0.09	0.15		0.59	0.04				
Control Delay	22.0	19.6	0.4		49.1	22.5				
Queue Delay	0.0	0.0	0.2		0.0	0.0				
Total Delay	22.0	19.6	0.6		49.1	22.5				
LOS	C	B	A		D	C				
Approach Delay		19.6	0.6		47.6					
Approach LOS		B	A		D					
Queue Length 50th (ft)	0	19	0		65	0				
Queue Length 95th (ft)	4	61	0		131	11				

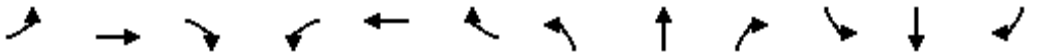


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø3	Ø4	Ø5	Ø6
Internal Link Dist (ft)		161	144		153					
Turn Bay Length (ft)						100				
Base Capacity (vph)	519	785	1922		571	516				
Starvation Cap Reductn	0	0	968		0	0				
Spillback Cap Reductn	0	0	0		0	0				
Storage Cap Reductn	0	0	0		0	0				
Reduced v/c Ratio	0.00	0.09	0.30		0.23	0.02				

Intersection Summary			
Area Type:	Other		
Cycle Length: 132			
Actuated Cycle Length: 88			
Natural Cycle: 85			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 16.8		Intersection LOS: B	
Intersection Capacity Utilization 27.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 107: Mall Looop Dwy/East Mall Entrance & Mall Loop Dwy





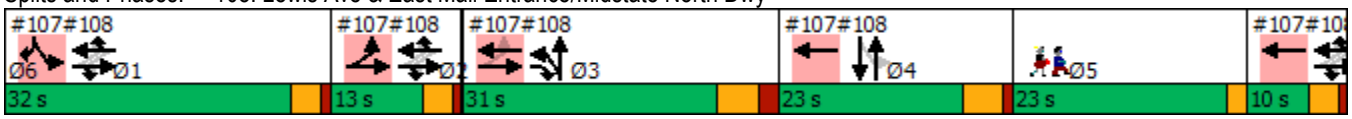
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	19	116	3	13	0	167	100	16	14	149	27
Future Volume (vph)	15	19	116	3	13	0	167	100	16	14	149	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	450		0	75		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25			25			105			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95
Frt			0.850					0.979			0.977	
Flt Protected		0.978			0.991		0.950			0.950		
Satd. Flow (prot)	0	1770	1538	0	1793	1810	3335	1772	0	1719	3359	0
Flt Permitted		0.922			0.980		0.950			0.674		
Satd. Flow (perm)	0	1668	1538	0	1773	1810	3335	1772	0	1220	3359	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			129					7			13	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		224			382			746			538	
Travel Time (s)		6.1			10.4			20.3			14.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	17	21	129	3	14	0	186	111	18	16	166	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	38	129	0	17	0	186	129	0	16	196	0
Turn Type	Perm	NA	pt+ov	Perm	NA	Prot	Prot	NA		Perm	NA	
Protected Phases		1 2 6	1 2 3 6		1 2 6	1 2 6	3	3 4			4	
Permitted Phases	1 2 6			1 2 6						4		
Detector Phase	1 2 6	1 2 6	1 2 3 6	1 2 6	1 2 6	1 2 6	3	3 4		4	4	
Switch Phase												
Minimum Initial (s)							16.0			6.0	6.0	
Minimum Split (s)							22.0			11.0	11.0	
Total Split (s)							31.0			23.0	23.0	
Total Split (%)							23.5%			17.4%	17.4%	
Yellow Time (s)							4.0			4.0	4.0	
All-Red Time (s)							2.0			1.0	1.0	
Lost Time Adjust (s)							0.0			0.0	0.0	
Total Lost Time (s)							6.0			5.0	5.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode							Max			None	None	
Act Effct Green (s)		32.9	64.9		32.9		25.9	41.5		10.4	10.4	
Actuated g/C Ratio		0.37	0.74		0.37		0.29	0.47		0.12	0.12	
v/c Ratio		0.06	0.11		0.03		0.19	0.15		0.11	0.48	
Control Delay		13.6	0.2		21.2		28.0	16.0		40.9	39.7	
Queue Delay		0.0	0.4		0.0		0.0	0.0		0.0	0.0	
Total Delay		13.6	0.6		21.2		28.0	16.0		40.9	39.7	
LOS		B	A		C		C	B		D	D	
Approach Delay		3.5			21.2			23.1			39.8	
Approach LOS		A			C			C			D	
Queue Length 50th (ft)		6	0		5		35	32		7	46	

Lane Group	Ø1	Ø2	Ø5	Ø6
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)				
Link Distance (ft)				
Travel Time (s)				
Peak Hour Factor				
Heavy Vehicles (%)				
Adj. Flow (vph)				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	2	5	6
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	6.0	4.0	1.0	6.0
Minimum Split (s)	10.0	8.0	23.0	10.0
Total Split (s)	32.0	13.0	23.0	10.0
Total Split (%)	24%	10%	17%	8%
Yellow Time (s)	3.0	3.0	2.0	3.0
All-Red Time (s)	1.0	1.0	0.0	1.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (ft)				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		16	0		26		98	109		34	109	
Internal Link Dist (ft)		144			302			666			458	
Turn Bay Length (ft)							450			75		
Base Capacity (vph)		757	1167		805		980	1003		258	721	
Starvation Cap Reductn		0	698		0		0	0		0	0	
Spillback Cap Reductn		0	0		0		0	0		0	0	
Storage Cap Reductn		0	0		0		0	0		0	0	
Reduced v/c Ratio		0.05	0.28		0.02		0.19	0.13		0.06	0.27	

Intersection Summary			
Area Type:	Other		
Cycle Length: 132			
Actuated Cycle Length: 88			
Natural Cycle: 85			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 23.4		Intersection LOS: C	
Intersection Capacity Utilization 39.3%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 108: Lewis Ave & East Mall Entrance/Midstate North Dwy



Lane Group	Ø1	Ø2	Ø5	Ø6
Queue Length 95th (ft)				
Internal Link Dist (ft)				
Turn Bay Length (ft)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	153	164	174	87	0	49	0	82	75	60	207	0
Future Volume (vph)	153	164	174	87	0	49	0	82	75	60	207	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		55	0		0	300		0	75		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			275			105		
Lane Util. Factor	0.95	0.95	1.00	0.95	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.886			0.928				
Flt Protected	0.950	0.996		0.950	0.988					0.950		
Satd. Flow (prot)	1649	1729	1553	1649	1519	0	0	3221	0	1736	3471	0
Flt Permitted	0.950	0.996		0.950	0.988					0.643		
Satd. Flow (perm)	1649	1729	1553	1649	1519	0	0	3221	0	1175	3471	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			191		110			82				
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		434			274			827			746	
Travel Time (s)		11.8			7.5			22.6			20.3	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	168	180	191	96	0	54	0	90	82	66	227	0
Shared Lane Traffic (%)	10%			18%								
Lane Group Flow (vph)	151	197	191	79	71	0	0	172	0	66	227	0
Turn Type	Split	NA	Perm	Split	NA			NA		Perm	NA	
Protected Phases	4	4		5	5			2			2	
Permitted Phases			4							2		
Detector Phase	4	4	4	5	5			2		2	2	
Switch Phase												
Minimum Initial (s)	9.0	9.0	9.0	7.0	7.0			15.0		15.0	15.0	
Minimum Split (s)	28.0	28.0	28.0	12.0	12.0			21.0		21.0	21.0	
Total Split (s)	34.0	34.0	34.0	18.0	18.0			27.0		27.0	27.0	
Total Split (%)	43.0%	43.0%	43.0%	22.8%	22.8%			34.2%		34.2%	34.2%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0			4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0			2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0			6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None			Max		Max	Max	
Act Effct Green (s)	11.6	11.6	11.6	8.0	8.0			21.5		21.5	21.5	
Actuated g/C Ratio	0.21	0.21	0.21	0.15	0.15			0.40		0.40	0.40	
v/c Ratio	0.43	0.53	0.40	0.33	0.22			0.13		0.14	0.17	
Control Delay	23.9	26.0	6.4	26.9	4.3			8.1		14.5	13.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0		0.0	0.0	
Total Delay	23.9	26.0	6.4	26.9	4.3			8.1		14.5	13.2	
LOS	C	C	A	C	A			A		B	B	
Approach Delay		18.4			16.2			8.1			13.5	
Approach LOS		B			B			A			B	
Queue Length 50th (ft)	46	62	0	25	0			9		14	24	
Queue Length 95th (ft)	98	124	42	66	16			32		45	57	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		354			194			747			666	
Turn Bay Length (ft)			55							75		
Base Capacity (vph)	901	944	935	403	455			1324		464	1373	
Starvation Cap Reductn	0	0	0	0	0			0		0	0	
Spillback Cap Reductn	0	0	0	0	0			0		0	0	
Storage Cap Reductn	0	0	0	0	0			0		0	0	
Reduced v/c Ratio	0.17	0.21	0.20	0.20	0.16			0.13		0.14	0.17	

Intersection Summary			
Area Type:	Other		
Cycle Length: 79			
Actuated Cycle Length: 54.3			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.53			
Intersection Signal Delay: 15.4		Intersection LOS: B	
Intersection Capacity Utilization 57.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 109: Lewis Ave & I-691 WB Exit Ramp/Midstate South Dwy

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø2	Ø3	Ø4
Lane Configurations									
Traffic Volume (vph)	0	0	156	388	180	288			
Future Volume (vph)	0	0	156	388	180	288			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Storage Length (ft)	0	0		140	175				
Storage Lanes	0	0		1	1				
Taper Length (ft)	25				140				
Lane Util. Factor	1.00	1.00	1.00	1.00	0.97	1.00			
Frt				0.850					
Flt Protected					0.950				
Satd. Flow (prot)	0	0	1827	1553	3367	1827			
Flt Permitted					0.950				
Satd. Flow (perm)	0	0	1827	1553	3367	1827			
Right Turn on Red		Yes		Yes					
Satd. Flow (RTOR)				400					
Link Speed (mph)	25		25			25			
Link Distance (ft)	400		182			827			
Travel Time (s)	10.9		5.0			22.6			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97			
Adj. Flow (vph)	0	0	161	400	186	297			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	0	0	161	400	186	297			
Turn Type			NA	Perm	Prot	NA			
Protected Phases			2 4		1	1 2	2	3	4
Permitted Phases				2 4					
Detector Phase			2 4	2 4	1	1 2			
Switch Phase									
Minimum Initial (s)					7.0		15.0	1.0	7.0
Minimum Split (s)					12.0		21.0	20.0	11.0
Total Split (s)					21.0		48.0	20.0	11.0
Total Split (%)					21.0%		48%	20%	11%
Yellow Time (s)					3.0		4.0	2.0	3.0
All-Red Time (s)					2.0		2.0	0.0	1.0
Lost Time Adjust (s)					0.0				
Total Lost Time (s)					5.0				
Lead/Lag					Lead		Lag	Lead	Lag
Lead-Lag Optimize?					Yes		Yes	Yes	Yes
Recall Mode					None		Max	None	None
Act Effct Green (s)			53.0	53.0	9.1	57.1			
Actuated g/C Ratio			0.73	0.73	0.12	0.78			
v/c Ratio			0.12	0.32	0.44	0.21			
Control Delay			3.6	1.2	33.0	2.5			
Queue Delay			0.0	0.0	0.0	0.0			
Total Delay			3.6	1.2	33.0	2.5			
LOS			A	A	C	A			
Approach Delay			1.9			14.2			
Approach LOS			A			B			
Queue Length 50th (ft)			16	0	40	25			
Queue Length 95th (ft)			40	22	69	41			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø2	Ø3	Ø4
Internal Link Dist (ft)	320		102			747			
Turn Bay Length (ft)				140	175				
Base Capacity (vph)			1325	1236	737	1418			
Starvation Cap Reductn			0	0	0	0			
Spillback Cap Reductn			0	0	0	0			
Storage Cap Reductn			0	0	0	0			
Reduced v/c Ratio			0.12	0.32	0.25	0.21			

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 73.1			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.44			
Intersection Signal Delay: 7.6		Intersection LOS: A	
Intersection Capacity Utilization 39.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 110: Lewis Ave & I-691 EB Entrance Ramp

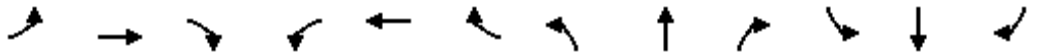
Intersection	
Int Delay, s/veh	1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	227	11	40	246	6	27
Future Vol, veh/h	227	11	40	246	6	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	86	86	75	75
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	267	13	47	286	8	36

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	280	0	654	274
Stage 1	-	-	-	-	274	-
Stage 2	-	-	-	-	380	-
Critical Hdwy	-	-	4.14	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	-	-	2.236	-	3.536	3.336
Pot Cap-1 Maneuver	-	-	1271	-	428	760
Stage 1	-	-	-	-	768	-
Stage 2	-	-	-	-	687	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1271	-	409	760
Mov Cap-2 Maneuver	-	-	-	-	409	-
Stage 1	-	-	-	-	768	-
Stage 2	-	-	-	-	657	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.1	10.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	409	760	-	-	1271	-
HCM Lane V/C Ratio	0.02	0.047	-	-	0.037	-
HCM Control Delay (s)	14	10	-	-	7.9	0
HCM Lane LOS	B	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0.1	-

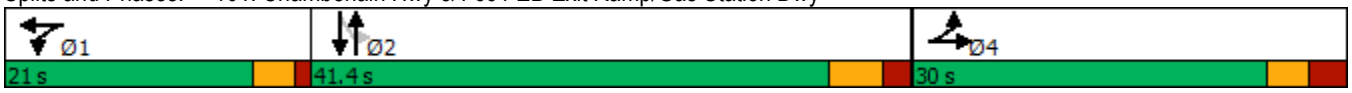


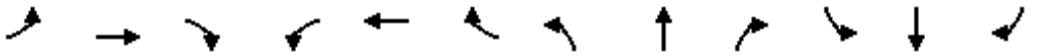
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	322	10	28	6	0	25	0	302	14	7	275	0
Future Volume (vph)	322	10	28	6	0	25	0	302	14	7	275	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	11	12	12	12	12
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt		0.977			0.893			0.994				
Flt Protected	0.950	0.962			0.990						0.999	
Satd. Flow (prot)	1633	1616	0	0	1600	0	0	3304	0	0	1808	0
Flt Permitted	0.950	0.962			0.990						0.987	
Satd. Flow (perm)	1633	1616	0	0	1600	0	0	3304	0	0	1786	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			99			6				
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		333			117			418			912	
Travel Time (s)		9.1			3.2			8.1			17.8	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	354	11	31	7	0	27	0	332	15	8	302	0
Shared Lane Traffic (%)	44%											
Lane Group Flow (vph)	198	198	0	0	34	0	0	347	0	0	310	0
Turn Type	Split	NA		Split	NA			NA		Perm	NA	
Protected Phases	4	4		1	1			2			2	
Permitted Phases										2		
Detector Phase	4	4		1	1			2		2	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0			15.0		15.0	15.0	
Minimum Split (s)	12.7	12.7		21.0	21.0			20.7		20.7	20.7	
Total Split (s)	30.0	30.0		21.0	21.0			41.4		41.4	41.4	
Total Split (%)	32.5%	32.5%		22.7%	22.7%			44.8%		44.8%	44.8%	
Yellow Time (s)	3.0	3.0		3.0	3.0			3.6		3.6	3.6	
All-Red Time (s)	2.7	2.7		1.0	1.0			2.1		2.1	2.1	
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	
Total Lost Time (s)	5.7	5.7			4.0			5.7			5.7	
Lead/Lag				Lead	Lead			Lag		Lag	Lag	
Lead-Lag Optimize?				Yes	Yes			Yes		Yes	Yes	
Recall Mode	None	None		None	None			Min		Min	Min	
Act Effct Green (s)	11.1	11.1			7.6			18.4			18.4	
Actuated g/C Ratio	0.25	0.25			0.17			0.41			0.41	
v/c Ratio	0.49	0.49			0.10			0.26			0.43	
Control Delay	21.3	20.4			0.5			11.0			13.8	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	21.3	20.4			0.5			11.0			13.8	
LOS	C	C			A			B			B	
Approach Delay		20.8			0.5			11.0			13.8	
Approach LOS		C			A			B			B	
Queue Length 50th (ft)	33	31			0			22			42	
Queue Length 95th (ft)	130	127			0			75			152	
Internal Link Dist (ft)		253			37			338			832	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Bay Length (ft)												
Base Capacity (vph)	951	945			710			2749			1485	
Starvation Cap Reductn	0	0			0			0			0	
Spillback Cap Reductn	0	0			0			0			0	
Storage Cap Reductn	0	0			0			0			0	
Reduced v/c Ratio	0.21	0.21			0.05			0.13			0.21	

Intersection Summary			
Area Type:	Other		
Cycle Length: 92.4			
Actuated Cycle Length: 45.1			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.49			
Intersection Signal Delay: 15.0		Intersection LOS: B	
Intersection Capacity Utilization 46.3%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 101: Chamberlain Hwy & I-691 EB Exit Ramp/Gas Station Dwy



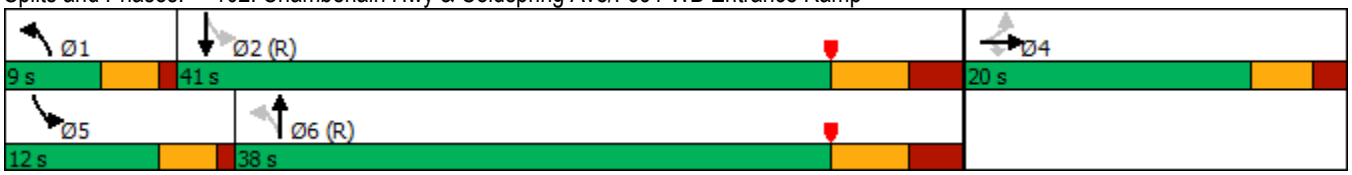


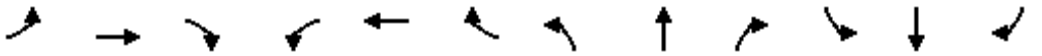
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	2	10	0	0	0	37	582	62	125	275	3
Future Volume (vph)	6	2	10	0	0	0	37	582	62	125	275	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	11	12	12	12	11	12	12	12	12	12
Storage Length (ft)	0		165	0		0	125		0	0		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			50			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt			0.850					0.985			0.999	
Flt Protected		0.963					0.950			0.950		
Satd. Flow (prot)	0	1701	1501	0	0	0	1678	3419	0	1736	1825	0
Flt Permitted		0.963					0.571			0.363		
Satd. Flow (perm)	0	1701	1501	0	0	0	1008	3419	0	663	1825	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			125					21			1	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		348			331			912			542	
Travel Time (s)		9.5			9.0			17.8			10.6	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	7	2	11	0	0	0	42	654	70	140	309	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	9	11	0	0	0	42	724	0	140	312	0
Turn Type	Perm	NA	Perm				pm+pt	NA		pm+pt	NA	
Protected Phases		4					1	6		5	2	
Permitted Phases	4		4				6			2		
Detector Phase	4	4	4				1	6		5	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0				5.0	15.0		5.0	15.0	
Minimum Split (s)	19.1	19.1	19.1				9.0	22.0		9.0	22.0	
Total Split (s)	20.0	20.0	20.0				9.0	38.0		12.0	41.0	
Total Split (%)	28.6%	28.6%	28.6%				12.9%	54.3%		17.1%	58.6%	
Yellow Time (s)	3.2	3.2	3.2				3.0	4.1		3.0	4.1	
All-Red Time (s)	1.9	1.9	1.9				1.0	2.9		1.0	2.9	
Lost Time Adjust (s)		0.0	0.0				0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.1	5.1				4.0	7.0		4.0	7.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None	None				None	C-Max		None	C-Max	
Act Effct Green (s)		8.4	8.4				55.9	50.1		58.1	54.0	
Actuated g/C Ratio		0.12	0.12				0.80	0.72		0.83	0.77	
v/c Ratio		0.04	0.04				0.05	0.29		0.22	0.22	
Control Delay		25.8	0.2				2.7	6.7		2.9	4.8	
Queue Delay		0.0	0.0				0.0	0.0		0.0	0.0	
Total Delay		25.8	0.2				2.7	6.7		2.9	4.8	
LOS		C	A				A	A		A	A	
Approach Delay		11.7						6.4			4.2	
Approach LOS		B						A			A	
Queue Length 50th (ft)		4	0				0	32		1	29	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		14	0				13	145		23	96	
Internal Link Dist (ft)		268			251			832			462	
Turn Bay Length (ft)			165				125					
Base Capacity (vph)		362	417				853	2455		681	1409	
Starvation Cap Reductn		0	0				0	0		0	0	
Spillback Cap Reductn		0	0				0	0		0	0	
Storage Cap Reductn		0	0				0	0		0	0	
Reduced v/c Ratio		0.02	0.03				0.05	0.29		0.21	0.22	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 11 (16%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.29			
Intersection Signal Delay: 5.7		Intersection LOS: A	
Intersection Capacity Utilization 44.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 102: Chamberlain Hwy & Coldspring Ave/I-691 WB Entrance Ramp





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	36	3	73	25	15	2	369	212	33	328	25
Future Volume (vph)	2	36	3	73	25	15	2	369	212	33	328	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	12	12	12	12	12	11	11	12
Storage Length (ft)	150		0	0		0	0		0	250		0
Storage Lanes	1		0	1		0	0		1	1		0
Taper Length (ft)	75			25			25			60		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.989			0.959				0.850		0.989	
Flt Protected	0.950			0.950	0.986					0.950		
Satd. Flow (prot)	1736	1807	0	1594	1641	0	0	1827	1553	1678	1747	0
Flt Permitted	0.950			0.950	0.986			0.998		0.435		
Satd. Flow (perm)	1736	1807	0	1594	1641	0	0	1823	1553	768	1747	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			16				221		9	
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		372			289			542			548	
Travel Time (s)		10.1			7.9			10.6			10.7	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	2	38	3	76	26	16	2	384	221	34	342	26
Shared Lane Traffic (%)				22%								
Lane Group Flow (vph)	2	41	0	59	59	0	0	386	221	34	368	0
Turn Type	Split	NA		Split	NA		Perm	NA	pt+ov	D.P+P	NA	
Protected Phases	5	5		4	4			2	2 4	1	1 2	
Permitted Phases							2			2		
Detector Phase	5	5		4	4		2	2	2 4	1	1 2	
Switch Phase												
Minimum Initial (s)	7.0	7.0		9.0	9.0		15.0	15.0		5.0		
Minimum Split (s)	12.5	12.5		14.0	14.0		20.5	20.5		8.5		
Total Split (s)	12.5	12.5		14.0	14.0		32.5	32.5		11.0		
Total Split (%)	17.9%	17.9%		20.0%	20.0%		46.4%	46.4%		15.7%		
Yellow Time (s)	3.0	3.0		3.0	3.0		3.9	3.9		3.0		
All-Red Time (s)	2.5	2.5		2.0	2.0		1.6	1.6		0.5		
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0		
Total Lost Time (s)	5.5	5.5		5.0	5.0			5.5		3.5		
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Recall Mode	None	None		None	None		C-Max	C-Max		None		
Act Effct Green (s)	7.0	7.0		9.0	9.0			32.0	46.0	41.5	45.0	
Actuated g/C Ratio	0.10	0.10		0.13	0.13			0.46	0.66	0.59	0.64	
v/c Ratio	0.01	0.22		0.29	0.26			0.46	0.20	0.06	0.33	
Control Delay	28.5	30.7		31.8	25.0			15.5	0.7	6.7	7.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0	0.0	0.0	
Total Delay	28.5	30.7		31.8	25.0			15.5	0.7	6.7	7.7	
LOS	C	C		C	C			B	A	A	A	
Approach Delay		30.6			28.4			10.1			7.6	
Approach LOS		C			C			B			A	
Queue Length 50th (ft)	1	15		24	17			126	1	6	75	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)	7	43		58	51			139	2	16	126	
Internal Link Dist (ft)		292			209			462			468	
Turn Bay Length (ft)	150									250		
Base Capacity (vph)	173	183		204	224			834	1097	555	1113	
Starvation Cap Reductn	0	0		0	0			0	0	0	0	
Spillback Cap Reductn	0	0		0	0			0	0	0	0	
Storage Cap Reductn	0	0		0	0			0	0	0	0	
Reduced v/c Ratio	0.01	0.22		0.29	0.26			0.46	0.20	0.06	0.33	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBSB, Start of Yellow, Master Intersection			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.46			
Intersection Signal Delay: 11.9		Intersection LOS: B	
Intersection Capacity Utilization 50.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 103: Chamberlain Hwy & Coldspring Ave

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	274	7	7	110	0	4	0	4	0	0	0
Future Volume (vph)	0	274	7	7	110	0	4	0	4	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	11	10	11	11	12	12	12	12	12	12
Storage Length (ft)	100		0	225		0	75		0	0		0
Storage Lanes	1		0	1		0	1		0	0		0
Taper Length (ft)	75			100			50			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996						0.850				
Flt Protected				0.950			0.950					
Satd. Flow (prot)	1722	3374	0	1636	3388	0	1752	1568	0	0	1845	0
Flt Permitted				0.530								
Satd. Flow (perm)	1722	3374	0	912	3388	0	1845	1568	0	0	1845	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7						517				
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		289			593			342			196	
Travel Time (s)		7.9			16.2			9.3			5.3	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	0	365	9	9	147	0	5	0	5	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	374	0	9	147	0	5	5	0	0	0	0
Turn Type	D.P+P	NA		Perm	NA		Perm	NA				
Protected Phases	4	1 2 4			1 2			3			3	
Permitted Phases	1 2			1 2			3			3		
Detector Phase	4	1 2 4		2	2		3	3		3	3	
Switch Phase												
Minimum Initial (s)	5.0						6.0	6.0		6.0	6.0	
Minimum Split (s)	10.0						20.0	20.0		20.0	20.0	
Total Split (s)	10.0						22.0	22.0		22.0	22.0	
Total Split (%)	14.3%						31.4%	31.4%		31.4%	31.4%	
Yellow Time (s)	4.0						4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0						1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0						0.0	0.0			0.0	
Total Lost Time (s)	5.0						5.0	5.0			5.0	
Lead/Lag	Lag						Lead	Lead		Lead	Lead	
Lead-Lag Optimize?	Yes						Yes	Yes		Yes	Yes	
Recall Mode	Max						None	None		None	None	
Act Effct Green (s)		44.0		30.5	30.5		6.1	6.1				
Actuated g/C Ratio		0.95		0.66	0.66		0.13	0.13				
v/c Ratio		0.12		0.02	0.07		0.02	0.01				
Control Delay		0.8		4.1	3.7		21.0	0.0				
Queue Delay		0.0		0.0	0.0		0.0	0.0				
Total Delay		0.8		4.1	3.7		21.0	0.0				
LOS		A		A	A		C	A				
Approach Delay		0.8			3.7			10.5				
Approach LOS		A			A			B				

Lane Group	Ø1	Ø2
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	1	2
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	10.0	2.0
Minimum Split (s)	14.0	6.0
Total Split (s)	24.0	14.0
Total Split (%)	34%	20%
Yellow Time (s)	4.0	3.0
All-Red Time (s)	0.0	1.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes
Recall Mode	Max	Min
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

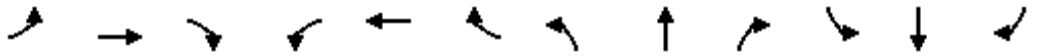
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		0		1	4		1	0				
Queue Length 95th (ft)		17		5	16		8	0				
Internal Link Dist (ft)		209			513			262			116	
Turn Bay Length (ft)				225			75					
Base Capacity (vph)		3195		676	2514		684	907				
Starvation Cap Reductn		0		0	0		0	0				
Spillback Cap Reductn		0		0	0		0	0				
Storage Cap Reductn		0		0	0		0	0				
Reduced v/c Ratio		0.12		0.01	0.06		0.01	0.01				

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 46.4			
Natural Cycle: 50			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.12			
Intersection Signal Delay: 1.8		Intersection LOS: A	
Intersection Capacity Utilization 20.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 104: Plaza Dwy/Parking Lot Dwy & Coldspring Ave

Lane Group	Ø1	Ø2
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

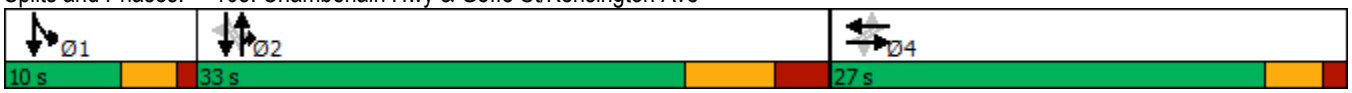


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	1	174	0	79	1	247	139	100	214	1
Future Volume (vph)	0	0	1	174	0	79	1	247	139	100	214	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	11	10	12	11	12
Storage Length (ft)	0		0	0		0	0		0	175		0
Storage Lanes	0		0	0		0	0		1	1		0
Taper Length (ft)	25			25			25			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865			0.958				0.850		0.999	
Flt Protected					0.967					0.950		
Satd. Flow (prot)	0	1565	0	0	1676	0	0	1749	1436	1719	1747	0
Flt Permitted					0.794			0.999		0.600		
Satd. Flow (perm)	0	1565	0	0	1376	0	0	1747	1436	1086	1747	0
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		654			134				145			
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		407			1782			548			604	
Travel Time (s)		11.1			34.7			10.7			11.8	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	0	0	1	181	0	82	1	257	145	104	223	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1	0	0	263	0	0	258	145	104	224	0
Turn Type		NA		Perm	NA		Perm	NA	Prot	D.P+P	NA	
Protected Phases		4			4			2	2	1	1 2	
Permitted Phases	4			4			2			2		
Detector Phase	4	4		4	4		2	2	2	1	1 2	
Switch Phase												
Minimum Initial (s)	9.0	9.0		9.0	9.0		15.0	15.0	15.0	6.0		
Minimum Split (s)	21.4	21.4		21.4	21.4		22.6	22.6	22.6	10.0		
Total Split (s)	27.0	27.0		27.0	27.0		33.0	33.0	33.0	10.0		
Total Split (%)	38.6%	38.6%		38.6%	38.6%		47.1%	47.1%	47.1%	14.3%		
Yellow Time (s)	3.0	3.0		3.0	3.0		4.7	4.7	4.7	3.0		
All-Red Time (s)	1.4	1.4		1.4	1.4		2.9	2.9	2.9	1.0		
Lost Time Adjust (s)		0.0			0.0			0.0	0.0	0.0		
Total Lost Time (s)		4.4			4.4			7.6	7.6	4.0		
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None		Max	Max	Max	None		
Act Effct Green (s)		11.7			11.7			25.5	25.5	35.1	39.1	
Actuated g/C Ratio		0.20			0.20			0.43	0.43	0.59	0.66	
v/c Ratio		0.00			0.69			0.34	0.21	0.15	0.19	
Control Delay		0.0			21.2			13.8	3.6	5.2	5.1	
Queue Delay		0.0			0.0			0.0	0.0	0.0	0.0	
Total Delay		0.0			21.2			13.8	3.6	5.2	5.1	
LOS		A			C			B	A	A	A	
Approach Delay					21.2			10.2			5.1	
Approach LOS					C			B			A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		0			41			55	0	9	22	
Queue Length 95th (ft)		0			107			128	31	34	67	
Internal Link Dist (ft)		327			1702			468			524	
Turn Bay Length (ft)										175		
Base Capacity (vph)		1002			608			750	699	707	1152	
Starvation Cap Reductn		0			0			0	0	0	0	
Spillback Cap Reductn		0			0			0	0	0	0	
Storage Cap Reductn		0			0			0	0	0	0	
Reduced v/c Ratio		0.00			0.43			0.34	0.21	0.15	0.19	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 59.3			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 11.4		Intersection LOS: B	
Intersection Capacity Utilization 58.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 105: Chamberlain Hwy & Goffe St/Kensington Ave



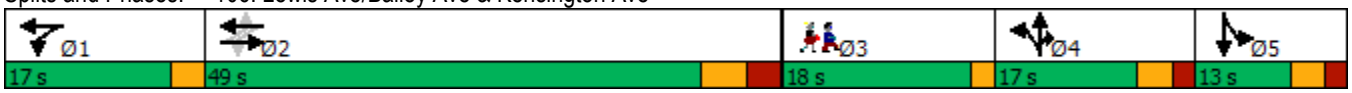
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	135	124	72	240	3	69	2	49	6	17	12
Future Volume (vph)	7	135	124	72	240	3	69	2	49	6	17	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	11	12	11	12	12	12
Storage Length (ft)	0		0	0		0	300		300	0		0
Storage Lanes	0		0	0		0	0		1	0		0
Taper Length (ft)	25			25			50			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.937			0.999				0.850		0.953	
Flt Protected		0.999			0.989			0.954			0.992	
Satd. Flow (prot)	0	1678	0	0	1771	0	0	1710	1473	0	1695	0
Flt Permitted		0.986			0.915			0.954			0.992	
Satd. Flow (perm)	0	1656	0	0	1638	0	0	1710	1473	0	1695	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									134		13	
Link Speed (mph)		30			30			10			25	
Link Distance (ft)		1115			277			538			351	
Travel Time (s)		25.3			6.3			36.7			9.6	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Adj. Flow (vph)	7	141	129	75	250	3	72	2	51	6	18	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	277	0	0	328	0	0	74	51	0	37	0
Turn Type	Perm	NA		pm+pt	NA		Split	NA	Prot	Split	NA	
Protected Phases		2		1	1 2		4	4	4	5	5	
Permitted Phases	2			1 2								
Detector Phase	2	2		1	1 2		4	4	4	5	5	
Switch Phase												
Minimum Initial (s)	15.0	15.0		5.0			9.0	9.0	9.0	7.0	7.0	
Minimum Split (s)	22.0	22.0		8.0			14.0	14.0	14.0	12.0	12.0	
Total Split (s)	49.0	49.0		17.0			17.0	17.0	17.0	13.0	13.0	
Total Split (%)	43.0%	43.0%		14.9%			14.9%	14.9%	14.9%	11.4%	11.4%	
Yellow Time (s)	4.0	4.0		3.0			3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	3.0	3.0		0.0			2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		0.0						0.0	0.0		0.0	
Total Lost Time (s)		7.0						5.0	5.0		5.0	
Lead/Lag	Lag	Lag		Lead			Lag	Lag	Lag			
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	Yes			
Recall Mode	Min	Min		Max			None	None	None	None	None	
Act Effct Green (s)		18.4			38.3			10.3	10.3		7.8	
Actuated g/C Ratio		0.30			0.61			0.17	0.17		0.13	
v/c Ratio		0.57			0.32			0.26	0.14		0.17	
Control Delay		27.9			9.7			32.5	0.9		27.1	
Queue Delay		0.0			0.0			0.0	0.0		0.0	
Total Delay		27.9			9.7			32.5	0.9		27.1	
LOS		C			A			C	A		C	
Approach Delay		27.9			9.7			19.6			27.1	
Approach LOS		C			A			B			C	

Lane Group	Ø3
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	18.0
Total Split (s)	18.0
Total Split (%)	16%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		74			31			20	0		7	
Queue Length 95th (ft)		240			192			89	0		46	
Internal Link Dist (ft)		1035			197			458			271	
Turn Bay Length (ft)									300			
Base Capacity (vph)		1204			1470			362	418		250	
Starvation Cap Reductn		0			0			0	0		0	
Spillback Cap Reductn		0			0			0	0		0	
Storage Cap Reductn		0			0			0	0		0	
Reduced v/c Ratio		0.23			0.22			0.20	0.12		0.15	

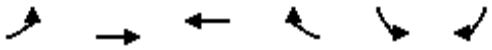
Intersection Summary			
Area Type:	Other		
Cycle Length: 114			
Actuated Cycle Length: 62.3			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.57			
Intersection Signal Delay: 18.7		Intersection LOS: B	
Intersection Capacity Utilization 55.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 106: Lewis Ave/Bailey Ave & Kensington Ave

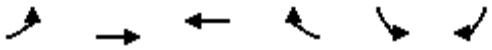


Lane Group	Ø3
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



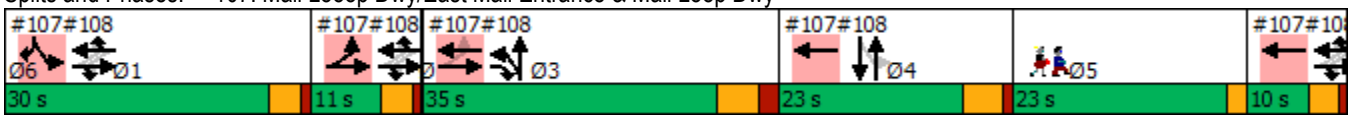
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø3	Ø4	Ø5	Ø6
Lane Configurations										
Traffic Volume (vph)	3	77	223	121	99	18				
Future Volume (vph)	3	77	223	121	99	18				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900				
Storage Length (ft)	0			0	0	100				
Storage Lanes	1			0	1	1				
Taper Length (ft)	25				25					
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00				
Frt			0.947			0.850				
Flt Protected	0.950				0.950					
Satd. Flow (prot)	1736	1827	3287	0	1736	1553				
Flt Permitted	0.478				0.950					
Satd. Flow (perm)	873	1827	3287	0	1736	1553				
Right Turn on Red				Yes		Yes				
Satd. Flow (RTOR)			96			24				
Link Speed (mph)		25	25		25					
Link Distance (ft)		241	224		233					
Travel Time (s)		6.6	6.1		6.4					
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74				
Adj. Flow (vph)	4	104	301	164	134	24				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	4	104	465	0	134	24				
Turn Type	custom	NA	NA		Prot	Prot				
Protected Phases	2	2 3	3 4 6		1	1	3	4	5	6
Permitted Phases	3									
Detector Phase	2	2 3	3 4 6		1	1				
Switch Phase										
Minimum Initial (s)	4.0				6.0	6.0	16.0	6.0	1.0	6.0
Minimum Split (s)	8.0				10.0	10.0	22.0	11.0	23.0	10.0
Total Split (s)	11.0				30.0	30.0	35.0	23.0	23.0	10.0
Total Split (%)	8.3%				22.7%	22.7%	27%	17%	17%	8%
Yellow Time (s)	3.0				3.0	3.0	4.0	4.0	2.0	3.0
All-Red Time (s)	1.0				1.0	1.0	2.0	1.0	0.0	1.0
Lost Time Adjust (s)	0.0				0.0	0.0				
Total Lost Time (s)	4.0				4.0	4.0				
Lead/Lag	Lag				Lead	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes				Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None				None	None	Max	None	None	None
Act Effct Green (s)	38.6	42.7	55.9		11.9	11.9				
Actuated g/C Ratio	0.41	0.46	0.60		0.13	0.13				
v/c Ratio	0.01	0.12	0.23		0.60	0.11				
Control Delay	21.3	19.5	2.0		52.4	17.3				
Queue Delay	0.0	0.0	0.2		0.0	0.0				
Total Delay	21.3	19.5	2.2		52.4	17.3				
LOS	C	B	A		D	B				
Approach Delay		19.6	2.2		47.1					
Approach LOS		B	A		D					
Queue Length 50th (ft)	1	31	8		71	0				
Queue Length 95th (ft)	9	84	13		135	18				

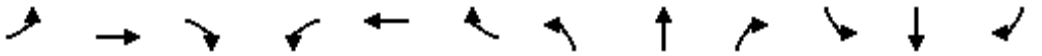


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø3	Ø4	Ø5	Ø6
Internal Link Dist (ft)		161	144		153					
Turn Bay Length (ft)						100				
Base Capacity (vph)	432	810	2008		498	462				
Starvation Cap Reductn	0	0	852		0	0				
Spillback Cap Reductn	0	0	0		0	0				
Storage Cap Reductn	0	0	0		0	0				
Reduced v/c Ratio	0.01	0.13	0.40		0.27	0.05				

Intersection Summary			
Area Type:	Other		
Cycle Length: 132			
Actuated Cycle Length: 93.2			
Natural Cycle: 85			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.60			
Intersection Signal Delay: 14.5		Intersection LOS: B	
Intersection Capacity Utilization 27.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 107: Mall Looop Dwy/East Mall Entrance & Mall Loop Dwy





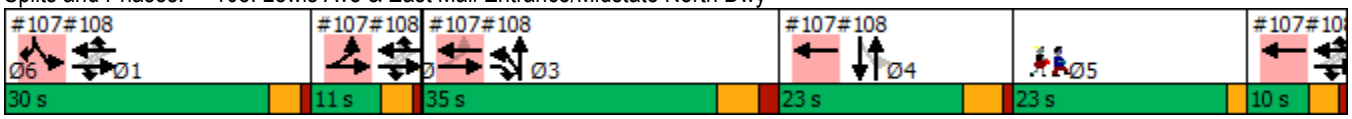
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	22	135	3	28	0	273	100	16	14	149	42
Future Volume (vph)	18	22	135	3	28	0	273	100	16	14	149	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	450		0	75		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25			25			105			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95
Frt			0.850					0.979			0.967	
Flt Protected		0.978			0.996		0.950			0.950		
Satd. Flow (prot)	0	1770	1538	0	1802	1810	3335	1772	0	1719	3325	0
Flt Permitted		0.909			0.989		0.950			0.674		
Satd. Flow (perm)	0	1645	1538	0	1790	1810	3335	1772	0	1220	3325	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			150					7			23	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		224			382			746			538	
Travel Time (s)		6.1			10.4			20.3			14.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	20	24	150	3	31	0	303	111	18	16	166	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	44	150	0	34	0	303	129	0	16	213	0
Turn Type	Perm	NA	pt+ov	Perm	NA	Prot	Prot	NA		Perm	NA	
Protected Phases		1 2 6	1 2 3 6		1 2 6	1 2 6	3	3 4			4	
Permitted Phases	1 2 6			1 2 6						4		
Detector Phase	1 2 6	1 2 6	1 2 3 6	1 2 6	1 2 6	1 2 6	3	3 4		4	4	
Switch Phase												
Minimum Initial (s)							16.0			6.0	6.0	
Minimum Split (s)							22.0			11.0	11.0	
Total Split (s)							35.0			23.0	23.0	
Total Split (%)							26.5%			17.4%	17.4%	
Yellow Time (s)							4.0			4.0	4.0	
All-Red Time (s)							2.0			1.0	1.0	
Lost Time Adjust (s)							0.0			0.0	0.0	
Total Lost Time (s)							6.0			5.0	5.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode							Max			None	None	
Act Effct Green (s)		33.0	69.0		33.0		29.8	46.5		11.5	11.5	
Actuated g/C Ratio		0.35	0.74		0.35		0.32	0.50		0.12	0.12	
v/c Ratio		0.08	0.13		0.05		0.28	0.15		0.11	0.50	
Control Delay		23.0	0.2		23.3		27.9	15.0		42.0	39.6	
Queue Delay		0.0	0.4		0.0		0.0	0.0		0.0	0.0	
Total Delay		23.0	0.7		23.3		27.9	15.0		42.0	39.6	
LOS		C	A		C		C	B		D	D	
Approach Delay		5.7			23.3			24.0			39.7	
Approach LOS		A			C			C			D	
Queue Length 50th (ft)		10	0		12		62	33		8	52	

Lane Group	Ø1	Ø2	Ø5	Ø6
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
Lane Util. Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)				
Link Distance (ft)				
Travel Time (s)				
Peak Hour Factor				
Heavy Vehicles (%)				
Adj. Flow (vph)				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	2	5	6
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	6.0	4.0	1.0	6.0
Minimum Split (s)	10.0	8.0	23.0	10.0
Total Split (s)	30.0	11.0	23.0	10.0
Total Split (%)	23%	8%	17%	8%
Yellow Time (s)	3.0	3.0	2.0	3.0
All-Red Time (s)	1.0	1.0	0.0	1.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (ft)				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (ft)		33	0		44		152	106		34	115	
Internal Link Dist (ft)		144			302			666			458	
Turn Bay Length (ft)							450			75		
Base Capacity (vph)		665	1169		724		1067	1019		242	678	
Starvation Cap Reductn		0	685		0		0	0		0	0	
Spillback Cap Reductn		0	0		0		0	0		0	0	
Storage Cap Reductn		0	0		0		0	0		0	0	
Reduced v/c Ratio		0.07	0.31		0.05		0.28	0.13		0.07	0.31	

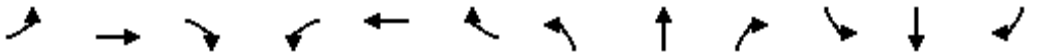
Intersection Summary			
Area Type:	Other		
Cycle Length: 132			
Actuated Cycle Length: 93.2			
Natural Cycle: 85			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.60			
Intersection Signal Delay: 24.1		Intersection LOS: C	
Intersection Capacity Utilization 40.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 108: Lewis Ave & East Mall Entrance/Midstate North Dwy



Lane Group	Ø1	Ø2	Ø5	Ø6
Queue Length 95th (ft)				
Internal Link Dist (ft)				
Turn Bay Length (ft)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	244	164	174	87	0	49	0	97	75	60	226	0
Future Volume (vph)	244	164	174	87	0	49	0	97	75	60	226	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		55	0		0	300		0	75		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	25			25			275			105		
Lane Util. Factor	0.95	0.95	1.00	0.95	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.886			0.935				
Flt Protected	0.950	0.990		0.950	0.988					0.950		
Satd. Flow (prot)	1649	1718	1553	1649	1519	0	0	3246	0	1736	3471	0
Flt Permitted	0.950	0.990		0.950	0.988					0.633		
Satd. Flow (perm)	1649	1718	1553	1649	1519	0	0	3246	0	1156	3471	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			191		110			82				
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		434			274			827			746	
Travel Time (s)		11.8			7.5			22.6			20.3	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	268	180	191	96	0	54	0	107	82	66	248	0
Shared Lane Traffic (%)	18%			18%								
Lane Group Flow (vph)	220	228	191	79	71	0	0	189	0	66	248	0
Turn Type	Split	NA	Perm	Split	NA			NA		Perm	NA	
Protected Phases	4	4		5	5			2			2	
Permitted Phases			4							2		
Detector Phase	4	4	4	5	5			2		2	2	
Switch Phase												
Minimum Initial (s)	9.0	9.0	9.0	7.0	7.0			15.0		15.0	15.0	
Minimum Split (s)	28.0	28.0	28.0	12.0	12.0			21.0		21.0	21.0	
Total Split (s)	34.0	34.0	34.0	18.0	18.0			27.0		27.0	27.0	
Total Split (%)	43.0%	43.0%	43.0%	22.8%	22.8%			34.2%		34.2%	34.2%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0			4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0			2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0			0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0			6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None			Max		Max	Max	
Act Effct Green (s)	12.7	12.7	12.7	8.1	8.1			21.6		21.6	21.6	
Actuated g/C Ratio	0.23	0.23	0.23	0.15	0.15			0.39		0.39	0.39	
v/c Ratio	0.59	0.58	0.38	0.33	0.23			0.14		0.15	0.18	
Control Delay	27.1	26.7	6.0	27.8	4.3			8.9		15.4	14.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0		0.0	0.0	
Total Delay	27.1	26.7	6.0	27.8	4.3			8.9		15.4	14.1	
LOS	C	C	A	C	A			A		B	B	
Approach Delay		20.6			16.7			8.9			14.4	
Approach LOS		C			B			A			B	
Queue Length 50th (ft)	71	73	0	26	0			11		14	28	
Queue Length 95th (ft)	140	143	41	68	17			37		47	64	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		354			194			747			666	
Turn Bay Length (ft)			55							75		
Base Capacity (vph)	884	921	921	396	448			1311		449	1348	
Starvation Cap Reductn	0	0	0	0	0			0		0	0	
Spillback Cap Reductn	0	0	0	0	0			0		0	0	
Storage Cap Reductn	0	0	0	0	0			0		0	0	
Reduced v/c Ratio	0.25	0.25	0.21	0.20	0.16			0.14		0.15	0.18	

Intersection Summary			
Area Type:	Other		
Cycle Length: 79			
Actuated Cycle Length: 55.5			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 16.9		Intersection LOS: B	
Intersection Capacity Utilization 60.2%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 109: Lewis Ave & I-691 WB Exit Ramp/Midstate South Dwy

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø2	Ø3	Ø4
Lane Configurations									
Traffic Volume (vph)	0	0	171	388	196	291			
Future Volume (vph)	0	0	171	388	196	291			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Storage Length (ft)	0	0		140	175				
Storage Lanes	0	0		1	1				
Taper Length (ft)	25				140				
Lane Util. Factor	1.00	1.00	1.00	1.00	0.97	1.00			
Frt				0.850					
Flt Protected					0.950				
Satd. Flow (prot)	0	0	1827	1553	3367	1827			
Flt Permitted					0.950				
Satd. Flow (perm)	0	0	1827	1553	3367	1827			
Right Turn on Red		Yes		Yes					
Satd. Flow (RTOR)				400					
Link Speed (mph)	25		25			25			
Link Distance (ft)	400		182			827			
Travel Time (s)	10.9		5.0			22.6			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97			
Adj. Flow (vph)	0	0	176	400	202	300			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	0	0	176	400	202	300			
Turn Type			NA	Perm	Prot	NA			
Protected Phases			2 4		1	1 2	2	3	4
Permitted Phases				2 4					
Detector Phase			2 4	2 4	1	1 2			
Switch Phase									
Minimum Initial (s)					7.0		15.0	1.0	7.0
Minimum Split (s)					12.0		21.0	20.0	11.0
Total Split (s)					21.0		48.0	20.0	11.0
Total Split (%)					21.0%		48%	20%	11%
Yellow Time (s)					3.0		4.0	2.0	3.0
All-Red Time (s)					2.0		2.0	0.0	1.0
Lost Time Adjust (s)					0.0				
Total Lost Time (s)					5.0				
Lead/Lag					Lead		Lag	Lead	Lag
Lead-Lag Optimize?					Yes		Yes	Yes	Yes
Recall Mode					None		Max	None	None
Act Effct Green (s)			53.1	53.1	9.4	57.5			
Actuated g/C Ratio			0.72	0.72	0.13	0.78			
v/c Ratio			0.13	0.32	0.47	0.21			
Control Delay			3.8	1.2	33.3	2.5			
Queue Delay			0.0	0.0	0.0	0.0			
Total Delay			3.8	1.2	33.3	2.5			
LOS			A	A	C	A			
Approach Delay			2.0			14.9			
Approach LOS			A			B			
Queue Length 50th (ft)			19	0	44	25			
Queue Length 95th (ft)			44	23	74	41			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø2	Ø3	Ø4
Internal Link Dist (ft)	320		102			747			
Turn Bay Length (ft)				140	175				
Base Capacity (vph)			1319	1232	734	1418			
Starvation Cap Reductn			0	0	0	0			
Spillback Cap Reductn			0	0	0	0			
Storage Cap Reductn			0	0	0	0			
Reduced v/c Ratio			0.13	0.32	0.28	0.21			

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 73.5			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.47			
Intersection Signal Delay: 8.0		Intersection LOS: A	
Intersection Capacity Utilization 39.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 110: Lewis Ave & I-691 EB Entrance Ramp

Intersection	
Int Delay, s/veh	1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	227	20	70	246	8	32
Future Vol, veh/h	227	20	70	246	8	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	86	86	75	75
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	267	24	81	286	11	43

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	291	0	727	279
Stage 1	-	-	-	-	279	-
Stage 2	-	-	-	-	448	-
Critical Hdwy	-	-	4.14	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	-	-	2.236	-	3.536	3.336
Pot Cap-1 Maneuver	-	-	1259	-	388	755
Stage 1	-	-	-	-	764	-
Stage 2	-	-	-	-	639	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1259	-	359	755
Mov Cap-2 Maneuver	-	-	-	-	359	-
Stage 1	-	-	-	-	764	-
Stage 2	-	-	-	-	590	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.8	11.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	359	755	-	-	1259	-
HCM Lane V/C Ratio	0.03	0.057	-	-	0.065	-
HCM Control Delay (s)	15.3	10.1	-	-	8.1	0
HCM Lane LOS	C	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0.2	-