

LOCATION OF EXISTING UTILITIES

EXISTING PUBLIC UTILITIES AND KNOWN UNDERGROUND STRUCTURES ARE SHOWN ON THE PLANS. THE INFORMATION SHOWN IS BELIEVED TO BE REASONABLY CORRECT AND COMPLETE. HOWEVER, NEITHER THE CORRECTNESS OR THE COMPLETENESS OF SUCH INFORMATION IS GUARANTEED. PRIOR TO THE START OF ANY CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY "MISS DIG" AND REQUEST THE UTILITY COMPANIES TO MARK THE UTILITIES IN QUESTION.

SPECIAL CARE SHALL BE TAKEN IN EXCAVATING IN THE PROXIMITY OF ALL UNDERGROUND UTILITIES. THE CONTRACTOR SHALL PROVIDE SUPPORT FOR ANY UTILITIES WITHIN THE EXCAVATION, PROVIDE PROPER COMPACTION UNDER ANY UNDERMINED UTILITY STRUCTURE AND IF NECESSARY, INSTALL TEMPORARY SHEETING OR USE A TRENCH BOX TO MINIMIZE THE EXCAVATION. CONTRACTOR SHALL PROTECT AND SAVE HARMLESS FROM DAMAGE ALL UTILITIES, ABOVE OR BELOW THE GROUND SURFACE, WHICH MAY BE ENCOUNTERED DURING CONSTRUCTION.



Know what's below.
Call before you dig.

THE LOCATION OF THE EXISTING UTILITIES, AS SHOWN ON THIS PLAN, ARE APPROXIMATE ONLY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ACTUAL LOCATION AND DEPTH OF ALL EXISTING UTILITIES. THE OWNER AND THE SURVEYOR SHALL NOT BE RESPONSIBLE FOR ANY OMISSION OR VARIATION FROM THE LOCATION SHOWN. THE CONTRACTOR SHALL NOTIFY "MISS DIG" AT (800) 482-7171 OR 811 THREE (9) WORKING DAYS PRIOR TO THE START OF CONSTRUCTION.

SITE UTILITY NOTES

THESE PLANS AND SPECIFICATIONS ARE SUBJECT TO MODIFICATION DURING CONSTRUCTION WHEN CONDITIONS DEVELOP THAT WERE NOT APPARENT DURING THE DESIGN AND PREPARATION OF THESE PLANS. ALL MODIFICATIONS MUST BE APPROVED BY LOCAL JURISDICTION PRIOR TO CONSTRUCTION AND/OR IMPLEMENTATION.

BEFORE COMMENCEMENT OF WORK, THE CONTRACTOR SHALL REVIEW ALL PLANS AND SPECIFICATIONS AND THE JOB SITE. THE CONTRACTOR SHALL NOTIFY THE OWNER AND THE ENGINEER WHO PREPARED THE PLANS OF ANY DISCREPANCIES THAT MAY REQUIRE MODIFICATION TO THESE PLANS OR OF ANY FIELD CONFLICTS.

IN THE EVENT OF ANY DISCREPANCY BETWEEN ANY DRAWING AND THE FIGURES WRITTEN THEREON, THE FIGURES SHALL BE TAKEN AS CORRECT.

SHOULD IT APPEAR THAT THE WORK TO BE DONE OR ANY MATTER RELATIVE THERETO IS NOT SUFFICIENTLY DETAILED OR EXPLAINED ON THESE PLANS, THE CONTRACTOR SHALL CONTACT THE ENGINEER FOR SUCH FURTHER EXPLANATIONS AS MAY BE NECESSARY.

CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY, AND HOLD THE OWNER AND DESIGN PROFESSIONAL HARMLESS OF ANY AND ALL LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR DESIGN PROFESSIONAL.

CONTRACTOR SHALL OBTAIN PERMITS PRIOR TO COMMENCING CONSTRUCTION INVOLVING RIGHTS-OF-WAY, AND FOR THE CONSTRUCTION, MODIFICATION, OR CONNECTION TO FACILITIES. ALL WORKMANSHIP, EQUIPMENT AND MATERIALS SHALL CONFORM TO LOCAL JURISDICTION STANDARDS AND SPECIFICATIONS.

TRAFFIC CONTROL SHALL BE PROVIDED IN ACCORDANCE WITH LOCAL JURISDICTION.

THE CONTRACTOR SHALL PROVIDE ALL LIGHTS, SIGNS, BARRICADES, FLAG MEN, OR OTHER DEVICES NECESSARY TO PROVIDE FOR PUBLIC SAFETY.

WHERE SOIL OR GEOLOGIC CONDITIONS ENCOUNTERED IN GRADING OPERATIONS ARE DIFFERENT FROM THOSE ANTICIPATED IN THE SOIL AND GEOLOGICAL INVESTIGATION REPORT, OR WHERE CONDITIONS WARRANT CHANGES TO THE RECOMMENDATIONS CONTAINED THEREIN, A REVISED SOIL OR GEOLOGIC REPORT SHALL BE SUBMITTED FOR APPROVAL AND SHALL BE ACCOMPANIED BY AN ENGINEER'S OPINION AS TO THE SAFETY OF THE SITE FROM THE POSSIBILITY OF LAND SLIPPAGE, SETTLEMENT AND SEISMIC ACTIVITY.

A PRECONSTRUCTION MEETING SHALL BE SCHEDULED WITH THE DEVELOPER, SERVICES PERSONNEL AND THE DEVELOPER'S CONTRACTOR. A PRECONSTRUCTION MEETING SHALL TAKE PLACE PRIOR TO THE STARTING OF ANY CONSTRUCTION ON THE SITE.

WAYNE COUNTY DPS GENERAL NOTES

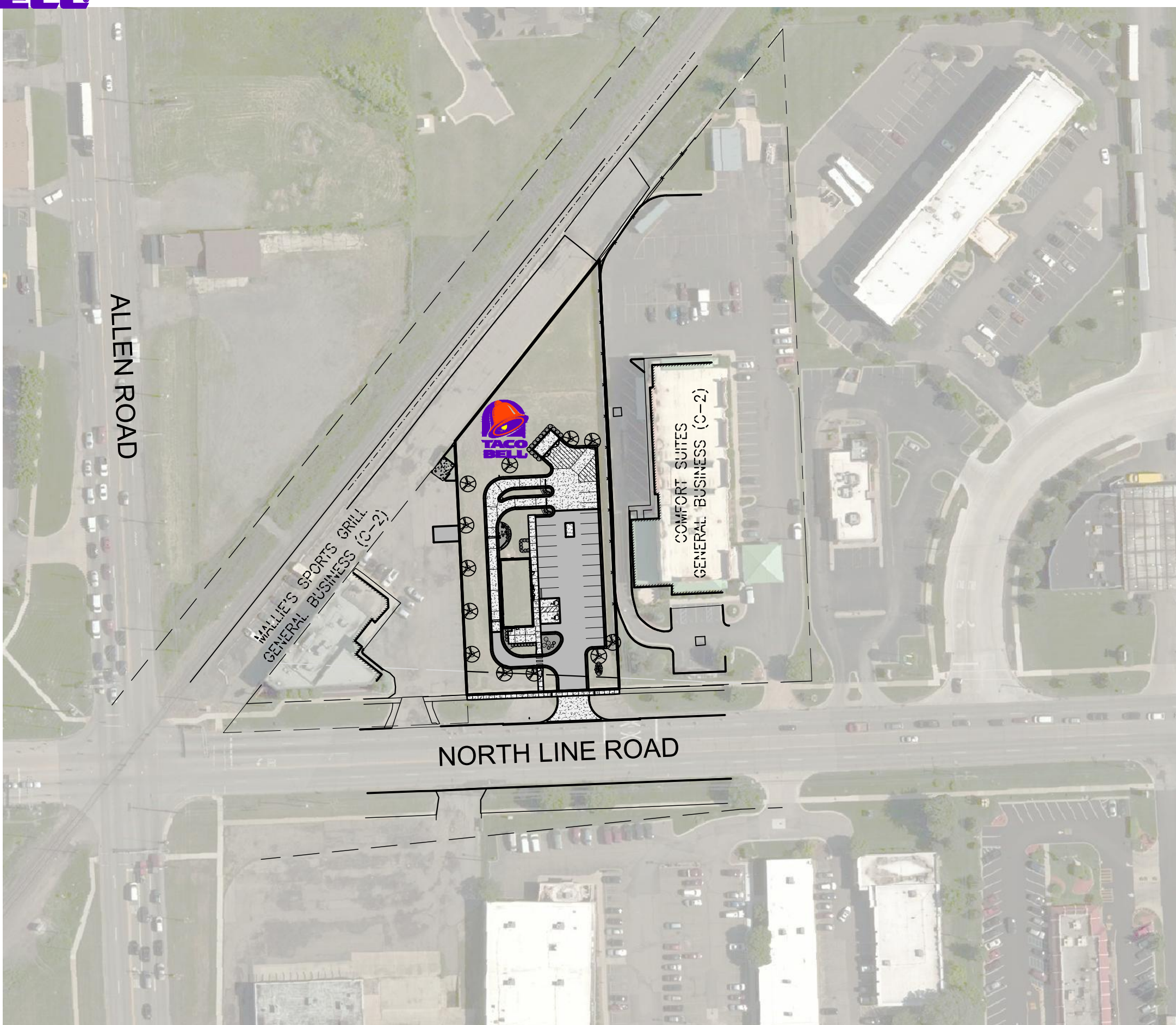
- ALL WORK WITHIN THE WAYNE COUNTY ROAD RIGHT-OF-WAY (ROW) AND DRAIN EASEMENT SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND GENERAL SPECIFICATIONS, INCLUDING SOIL EROSION AND SEDIMENTATION CONTROL OF THE WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES, AND MDOT 2012 SPECIFICATIONS FOR CONSTRUCTION.
- THESE PLANS ARE NOT VALID WITHOUT ATTACHMENT OF THE WAYNE COUNTY PERMIT SPECIFICATIONS FOR CONSTRUCTION WITHIN THE ROAD ROW, PARKS, DRAIN EASEMENT OR SANITARY SEWER UNDER JURISDICTION OF THE WAYNE COUNTY (07/01/93) REVISED 12/15/2004.
- CONTRACTORS SHALL CONTACT MISS DIG AT 811 TO IDENTIFY AND FLAG/MARK THE LOCATIONS OF ALL UNDERGROUND UTILITIES AT THE PROPOSED CONSTRUCTION AREAS PRIOR TO START OF CONSTRUCTION, AND SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATIONS AND ELEVATIONS OF ALL UNDERGROUND UTILITIES, AND RESOLVE ANY CONFLICT BETWEEN THE PROPOSED WORK AND THE EXISTING UNDERGROUND OR ABOVEGROUND UTILITIES.
- CONTRACTOR SHALL MAINTAIN 18" MINIMUM VERTICAL CLEARANCE AND 3 FEET MINIMUM HORIZONTAL CLEARANCE BETWEEN THE PROPOSED AND EXISTING UTILITIES. ANY PROPOSED UTILITY PERMITTED TO CROSS UNDER THE ROAD OR DRAIN, MUST BE PLACED A MINIMUM OF 7 FEET BELOW THE LOWEST POINT OF THE ROAD, OR 6 FEET BELOW THE DRAIN BOTTOM. OVERHEAD WIRES/CABLES MUST BE INSTALLED 18 FEET MINIMUM ABOVE THE ROAD CENTERLINE. TO RELOCATE ANY UTILITY WITHIN THE ROAD ROW, THE CONTRACTOR SHALL COORDINATE THE RELOCATION WITH THE UTILITY COMPANY AND AS DIRECTED BY THE WAYNE COUNTY ENGINEER.
- ALL SURVEY MONUMENTS/CORNERS AND BENCH MARKS LOCATED WITHIN THE CONSTRUCTION AREA MUST BE RESERVED IN ACCORDANCE WITH PUBLIC ACT 74 AS MENDED (INCLUDING ACT 34, P.A. 2000) AND AS PER WAYNE COUNTY PERMIT RULE 1.5. THE PERMIT HOLDER AND CONTRACTOR SHALL COORDINATE THE WORK WITH A PROFESSIONAL SURVEYOR LICENSED IN THE STATE OF MICHIGAN DURING CONSTRUCTION ACTIVITIES FOR THE PURPOSE OF WITNESSING, PRESERVING OR REPLACING SURVEY MONUMENTS AND MONUMENT BOXES.
- EXPOSURE OF ANY UTILITIES UNDER THE PAVEMENT WILL NOT BE PERMITTED, UNLESS APPROVED BY THE WAYNE COUNTY ENGINEER. PAVEMENT REMOVAL AND REPLACEMENT SHALL BE PERFORMED PER APPLICABLE WAYNE COUNTY STANDARD DETAILS AN AS DIRECTED BY THE WAYNE COUNTY ENGINEER.
- CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS WITHIN THE WAYNE COUNTY ROAD ROW AND DRAIN EASEMENT WITH 3" TOPSOIL, THM SEED MIX AND MULCH. SLOPES STEEPER THAN 1 ON 3 SHALL BE RESTORED BY PLACING SOD 2" TOPSOIL.
- ALL BACKFILLS UNDER OR WITHIN 3 FEET OF THE PROPOSED OR EXISTING PAVEMENT, CURB OR SIDEWALK SHALL CONFORM TO THE WAYNE COUNTY TRENCH "B" BACKFILL REQUIREMENTS. TRENCH "A" BACKFILL MAY BE USED WITHIN THE ROAD ROW AREAS UNDER CONDITIONS OTHER THAN THOSE SPECIFIED FOR TRENCH "B".
- CONTRACTOR IS RESPONSIBLE FOR RESTORING OR REPLACING ALL DISTURBED LANDSCAPED AREAS, SPRINKLER SYSTEMS, FENCES, SIGNS, MAIL BOXES, ETC. WITHIN THE WAYNE COUNTY ROAD ROW AND/OR AS DIRECTED BY THE WAYNE COUNTY ENGINEER.
- CONTRACTOR SHALL MAINTAIN TWO-WAY TRAFFIC AT ALL TIMES. OTHERWISE, DETOURING TRAFFIC MUST BE PER APPROVED PLANS. ALL SIGNING AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF M.M.U.T.C.D.
- MAINTAIN A SAFE AND ADEQUATE TRAVEL ROUTE FOR PEDESTRIANS AT ALL TIMES THROUGHOUT THE PROJECT DURATION.
- TUNNELING, BORING AND JACKING OPERATIONS SHALL BE IN ACCORDANCE WITH THE WAYNE COUNTY SPECIFICATIONS AND DETAILS. BORE PITS SHALL BE PLACED AT MINIMUM 10 FEET FROM THE BACK OF CURB OR EDGE OF PAVEMENT.
- REMOVE ALL ABANDONED CONDUITS FROM THE COUNTY ROADS ROW OR AS DIRECTED BY THE WAYNE COUNTY ENGINEER.
- CONTRACTOR SHALL PROVIDE COLD WEATHER PROTECTION FOR ALL PROPOSED CONCRETE WORK (PAVEMENTS, SIDEWALKS, DRIVE APPROACHES, ETC.) AS DIRECTED BY THE WAYNE COUNTY ENGINEER.
- OVERNIGHT VEHICLE PARKING AND STORAGE OF CONSTRUCTION MATERIALS AND EQUIPMENTS ARE NOT PERMITTED WITHIN THE WAYNE COUNTY ROADS RIGHTS-OF-WAY.
- CONTRACTOR SHOULD OBTAIN SOIL EROSION AND SEDIMENTATION CONTROL PERMIT FROM THE WAYNE COUNTY DPS-ESG. CONTACT SOIL EROSION OFFICE AT (734) 326-5565.
- CONTRACTOR SHALL NOTIFY THE WAYNE COUNTY TRAFFIC SIGNAL SHOP AT (734) 955-2154 AT LEAST 72 HOURS PRIOR TO START OF WORK AT OR NEAR ANY SIGNALIZED INTERSECTIONS.
- CONTRACTOR SHALL NOTIFY WAYNE COUNTY 72 HOURS PRIOR TO START OF CONSTRUCTION. CONTACT THE PERMIT OFFICE AT (734) 595-6504 EXT. 2009.

GENERAL SITE NOTES



TACO BELL

SECTION 23, T3S-R10E, CITY OF SOUTHGATE
WAYNE COUNTY, MICHIGAN



CERTIFICATION:

I hereby certify that this plan set, dated June 19, 2018, is a true and accurate copy of the plans approved as noted by Hennessey Engineers, Inc., on June 14, 2018.

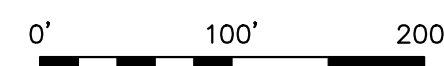
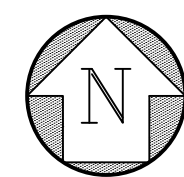
Signature: _____

Michigan P.E. License No.: _____

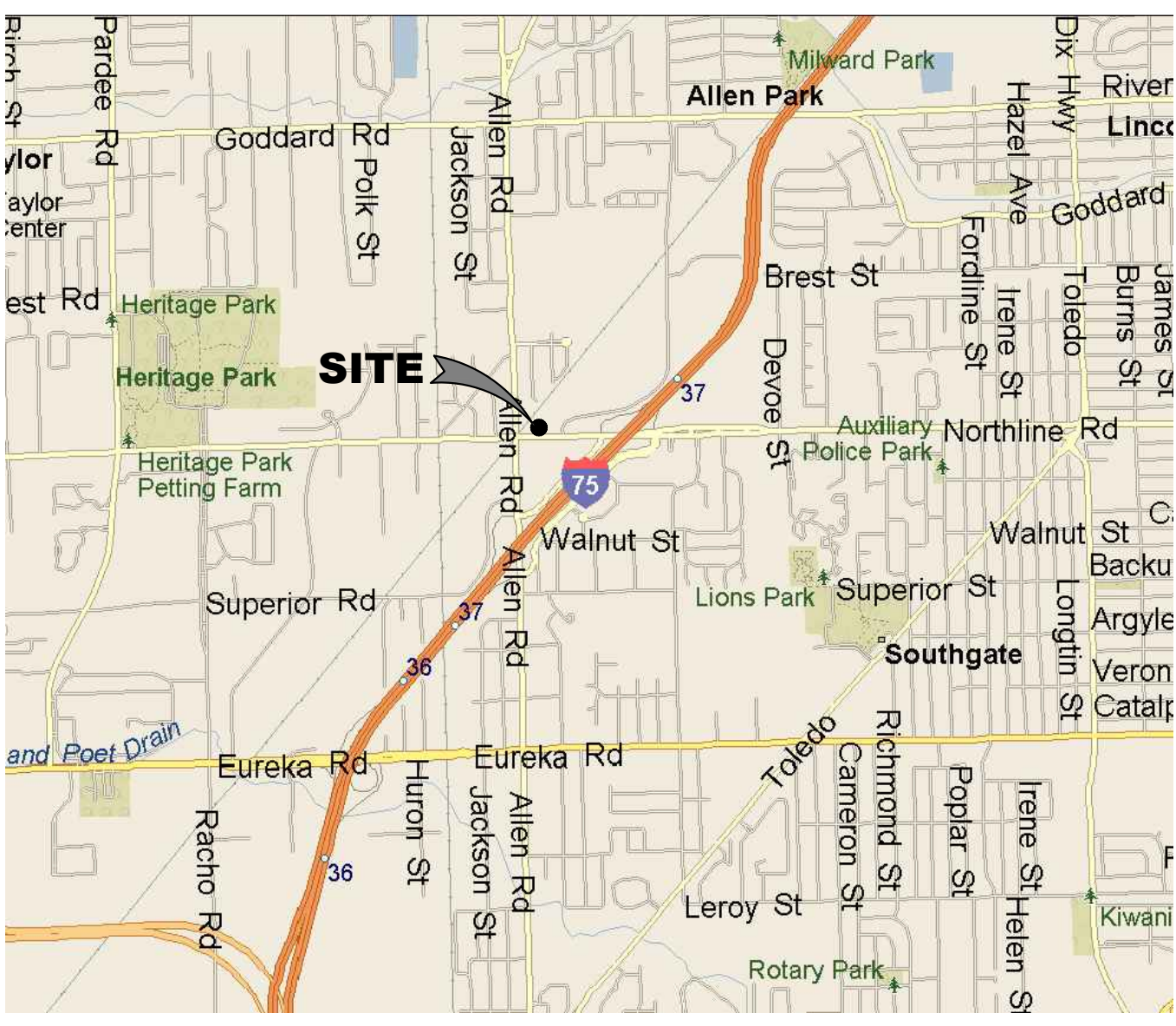
Certification Date: _____

CERTIFICATION:

WT DEVELOPMENT CORPORATION, CERTIFIES THAT THESE PLANS HAVE BEEN COMPLETED IN ACCORDANCE WITH THE STANDARDS OF THE CITY OF SOUTHGATE AND HAVE BEEN APPROVED BY HENNESSEY ENGINEERS, INC. IN THERE CAPACITY AS THE CITY ENGINEER.



SITE SKETCH 1" = 100'



LOCATION MAP N.T.S.

PROPERTY OWNER/APPLICANT

OWNER:
MIRIAM AND JASON SAAD
12916 NORTH LINE ROAD
SOUTHGATE, MI 48195
PHONE: (248) 308-0590

APPLICANT:
TACO BELL OF AMERICA
1 GLEN BELL WAY
IRVINE, CA 82618
PHONE: (949) 863-4500

ZONING INFORMATION

PARCEL ID: 53-004-99-0002-701
PARCEL AREA: 1.096 ACRES
PARCEL ZONING: GENERAL BUSINESS (C-2)
PROPOSED USE: RESTAURANT, DRIVE-THRU
PARCEL ADDRESS: 19578 NORTH LINE ROAD
SOUTHGATE, MICHIGAN, 48195

STRUCTURE SETBACKS

FRONT: 25 FEET
SIDE: 10 FEET
REAR: 20 FEET

PARKING SETBACKS

FRONT: DETERMINED BY PLANNING COMMISSION
SIDE: DETERMINED BY PLANNING COMMISSION
REAR: DETERMINED BY PLANNING COMMISSION

PARKING REQUIREMENTS

PARKING FORMULA:

ONE SPACE FOR EACH 75 SQUARE FEET OF USABLE FLOOR AREA, PLUS TEN FRONT TO BACK SPACES FOR THE DRIVE-THROUGH WINDOW.

USABLE FLOOR AREA: 1,020 S.F.

TOTAL NO. OF PARKING SPACES REQUIRED - 26

NO. OF BARRIER-FREE PARKING SPACES PROVIDED - 2

TOTAL NO. OF PARKING SPACES PROVIDED - 27

DRIVE-THRU STACKING SPACES PROVIDED - 10

LOADING AND UNLOADING REQUIREMENTS:

SHALL BE PROVIDED IN THE REAR YARD AT A RATIO OF TEN SQUARE FEET FOR EACH FRONT FOOT OF BUILDING.

BUILDING FRONTAGE: 28 FEET
LOADING AREA REQUIRED: 280 S.F.
LOADING AREA PROVIDED: 280 S.F.

PROJECT INFORMATION

(PER CHICAGO TITLE INSURANCE COMPANY COMMITMENT FILE NO. 821028149NTS, REVISION 1, WITH AN EFFECTIVE DATE OF AUGUST 14, 2017)

LAND SITUATED IN THE STATE OF MICHIGAN, COUNTY OF WAYNE, CITY OF SOUTHGATE.

PART OF SOUTHWEST 1/4 OF FRACTURAL SECTION 23, TOWN 3 SOUTH, RANGE 10 EAST, DESCRIBED AS: BEGINNING SOUTH 88 DEG. 20' 40" EAST 330.00 FEET AND NORTH 01 DEG. 15' 56" EAST 60.00 FEET FROM THE SOUTHWEST CORNER OF SAID FRACTURAL SECTION 23; THENCE NORTH 01 DEG. 15' 56" EAST 243.15 FEET; THENCE NORTH 42 DEG. 25' 19" EAST 221.84 FEET; THENCE SOUTH 01 DEG. 15' 56" WEST 411.17 FEET; THENCE NORTH 88 DEG. 20' 40" WEST 146.00 FEET TO THE POINT OF BEGINNING.

△ ELEC. ROUTE/MH PER DTE 08.06.18

△ ADA PWMT TYPE 08.13.18

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- △
- △
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BOUNDARY DESCRIPTION

SHEET	SHEET TITLE
C	COVER SHEET
C0	ALTA/ACSM LAND TITLE SURVEY
C1.0	DEMOLITION PLAN
C2.0	SOIL EROSION AND SEDIMENTATION CONTROL PLAN
SESC-1	CITY OF SOUTHGATE SOIL EROSION CONTROL DETAILS
C3.0	SITE PLAN
C3.1	SITE DETAILS
C3.2	SITE DETAILS
C3.3	TRASH ENCLOSURE DETAILS
C3.4	WAYNE COUNTY STANDARD DETAILS
C3.5	WAYNE COUNTY STANDARD DETAILS
C4.0	GRADING PLAN
C5.0	DRAINAGE PLAN
C6.0	UTILITY PLAN
C6.1	STORM SEWER PROFILES
C6.2	STORM SEWER PROFILES
C6.3	UTILITY DETAILS
C6.4	UTILITY DETAILS
PAV-1	CITY OF SOUTHGATE PAVING DETAILS
SAN-1	CITY OF SOUTHGATE SANITARY SEWER DETAILS
STM-1	CITY OF SOUTHGATE STORM SEWER DETAILS
C6.5	STORM WATER MANAGEMENT EXHIBITS
L1.0	LANDSCAPE PLAN
I1.0	ILLUMINATION PLAN

SHEET INDEX

ISSUE DATE: 06.19.2018

BUILDING TYPE: EXPLORER LITE

PLAN VERSION: MEDIUM 40

SITE NUMBER: 312529

ENTITY NUMBER: 445209

TACO BELL

19578 NORTH LINE ROAD
SOUTHGATE, MI 48195



COVER SHEET

C

PLOT DATE: 08.13.2018

SANITARY SEWER / WATER

CITY OF SOUTHGATE DPS
14400 DIX-TOLEDO ROAD
SOUTHGATE, MICHIGAN 48195
Contact: BOB TARABULA
Phone: (734) 326-3936

ROADS/HIGHWAY

WAYNE COUNTY DPS
33809 MICHIGAN AVENUE
WAYNE, MICHIGAN 48184
Contact: ALI ALJAWAD
Phone: (734) 595-6504

STORM DRAINAGE

WAYNE COUNTY DPS
33809 MICHIGAN AVENUE
WAYNE, MICHIGAN 48184
Contact: ALI ALJAWAD
Phone: (734) 595-6504

FIRE CODE

CITY OF SOUTHGATE BUILDING DEPARTMENT
14400 DIX-TOLEDO ROAD
SOUTHGATE, MICHIGAN 48195
Contact: BOB CASANOVA
Phone: (734) 258-3010

PLANNING/ZONING

CITY OF SOUTHGATE BUILDING DEPARTMENT
14400 DIX-TOLEDO ROAD
SOUTHGATE, MICHIGAN 48195
Contact: BOB CASANOVA
Phone: (734) 258-3010

HEALTH DEPARTMENT

WAYNE COUNTY DEPARTMENT OF PUBLIC HEALTH
33030 VAN BORN ROAD
WAYNE, MICHIGAN 48184
Contact: ENVIRONMENTAL HEALTH SECTION
Phone: (734) 727-7400

ELECTRIC

DTE ENERGY
ONE ENERGY PLAZA, 2020 WCB
DETROIT, MI 48226
Contact: NEW CONSTRUCTION PLANNER
Phone: (800) 338-0178

TELEPHONE

AT&T

Contact:
Phone: (313) 240-5486

NATURAL GAS

DTE ENERGY
ONE ENERGY PLAZA, 2020 WCB
DETROIT, MI 48226
Contact: NEW CONSTRUCTION PLANNER
Phone: (800) 338-0178

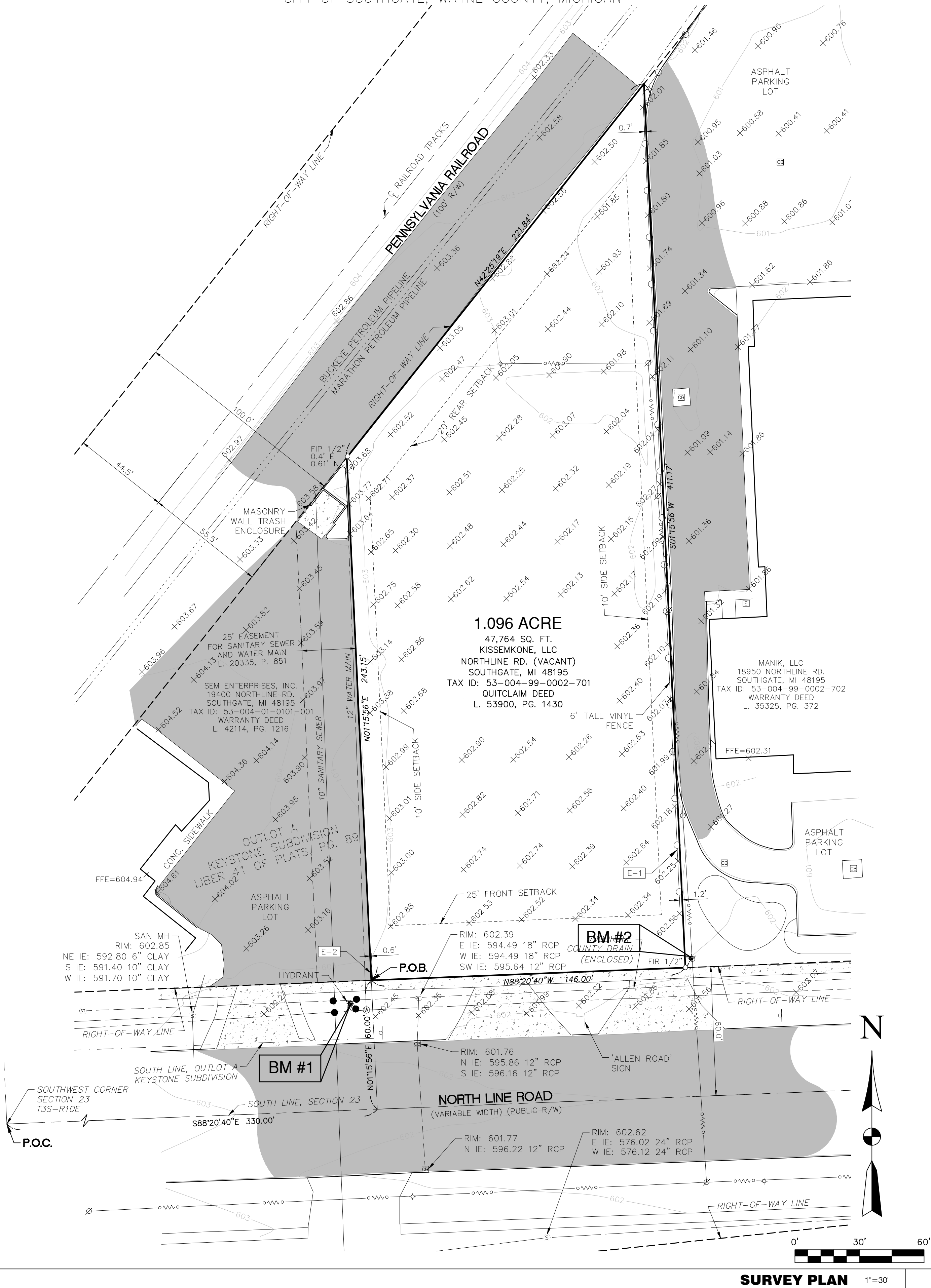
EMERGENCIES

POLICE DEPARTMENTS - 911
FIRE DEPARTMENTS - 911
AMBULANCE - 911

AGENCIES

ALTA/NSPS LAND TITLE SURVEY

IN THE SOUTHWEST 1/4 OF SECTION 23, TOWN 3 SOUTH, RANGE 10 EAST,
CITY OF SOUTHGATE, WAYNE COUNTY, MICHIGAN



VICINITY MAP
NOT TO SCALE

ZONE INFORMATION:
CURRENT ZONING CLASSIFICATION: "C2" GENERAL BUSINESS
BUILDING SETBACK REQUIREMENTS:
FRONT: 25 FEET
SIDE: 10 FEET
REAR: 20 FEET
HEIGHT RESTRICTIONS (MAXIMUM HEIGHT): 40 FEET WITH 2 STORIES MAXIMUM
FLOOR SPACE AREA RESTRICTIONS (MAXIMUM DENSITY): BASED ON OFF-STREET PARKING AND LOADING, GREENBELT SCREENING, YARD SETBACK OR USABLE OPEN SPACE REQUIREMENTS
AS PERTAINING TO TABLE A REQUIREMENTS, ITEM 6(A) AND 6(B), INFORMATION WAS PROVIDED IN A SITE INVESTIGATION REPORT PREPARED BY GPD ASSOCIATES.

SCHEDULE B II EXCEPTIONS:
(PER CHICAGO TITLE INSURANCE COMPANY COMMITMENT FILE NO. 821028149NTS, REVISION 1, WITH AN EFFECTIVE DATE OF AUGUST 14, 2017)
1-2 NOT A SURVEY MATTER
3 INTENTIONALLY DELETED
4-10 NOT A SURVEY MATTER

ENCROACHMENTS:
E-1 VINYL FENCE ENCROACHES FROM THE ADJOINING LAND TO THE EAST TO THE MAXIMUM EXTENT OF 1.2 FEET LOCATED ON THE EAST SIDE OF THE SUBJECT PROPERTY. MAY OR MAY NOT CONSTITUTE AN ENCROACHMENT.
E-2 ASPHALT PARKING LOT ENCROACHES FROM THE ADJOINING LAND TO THE WEST TO THE MAXIMUM EXTENT OF 0.6 FEET LOCATED IN THE SOUTHWEST CORNER OF SUBJECT PROPERTY. MAY OR MAY NOT CONSTITUTE AN ENCROACHMENT.

BENCHMARKS:
BM #1: ARROW ON HYDRANT
ELEV: 605.02 (NAVD 88)
BM #2: BENCH TIE SET IN NORTHWEST SIDE OF POWER POLE
ELEV: 603.03 (NAVD 88)

DESCRIPTION:
(PER CHICAGO TITLE INSURANCE COMPANY COMMITMENT FILE NO. 821028149NTS, REVISION 1, WITH AN EFFECTIVE DATE OF AUGUST 14, 2017 AT 8:00 AM)
Land Situated in the State of Michigan, County of Wayne, City of Southgate.
Part of Southwest 1/4 of Fractural Section 23, Town 3 South, Range 10 East, described as: Beginning South 88 deg. 20' 40" East 330.00 feet and North 01 deg. 15' 56" East 60.00 feet from the Southwest corner of said Fractural Section 23; thence North 01 deg. 15' 56" East 243.15 feet; thence North 42 deg. 25' 19" East 221.84 feet; thence South 01 deg. 15' 56" West 411.17 feet; thence North 88 deg. 20' 40" West 146.00 feet to the point of beginning.

SURVEYORS NOTES:

- THE BEARING BASIS FOR THE SITE IS DESCRIPTION AS FURNISHED.
- I HEREBY CERTIFY THAT THE PARCEL SHOWN HEREON DOES NOT LIE WITHIN A SPECIAL FLOOD HAZARD ZONE ACCORDING TO THE FLOOD INSURANCE RATE MAP PUBLISHED BY THE FEDERAL INSURANCE ADMINISTRATION FOR THE COUNTY OF WAYNE, STATE OF MICHIGAN, COMMUNITY NUMBER - 260242, MAP NUMBER 26163C0403E, AN EFFECTIVE DATE OF FEBRUARY 2, 2012. THEREFORE AS NOTED IN SAID DOCUMENT, THE SCALED LOCATION OF THE SUBJECT PROPERTY IS IN ZONE X (UNSHADED), TO THE BEST OF MY KNOWLEDGE AND BELIEF.
- DATE OF SURVEY: AUGUST 2, 2017.
- SOME FEATURES SHOWN ON SURVEY MAY BE OUT OF SCALE FOR CLARITY.
- DIMENSIONS ON THIS SURVEY ARE EXPRESSED IN FEET AND DECIMAL PARTS THEREOF UNLESS OTHERWISE NOTED.
- NO BUILDINGS EXISTING ON THE SURVEYED PROPERTY.
- SQUARE FOOTAGE:
A. GROSS LAND AREA OF PARCEL: 1.096 ACRE, (47,764 SQUARE FEET).
B. NET LAND AREA OF PARCEL (DOES NOT INCLUDE ROAD RIGHT-OF-WAY): N/A-NO ROAD RIGHT-OF-WAY LOCATED ON PARCEL.
- PERTAINING TO TABLE A REQUIREMENTS, ITEM 5, THE FOLLOWING INFORMATION WAS USED AT THE TIME OF SURVEY:
A. SOURCE OF INFORMATION - GROUND SURVEY
B. CONTOUR INTERVAL - 1 FOOT
C. DATUM - NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)
D. ORIGINATING BENCHMARK - ONLINE POSITIONING USER SERVICE (OPUS)
- AS PERTAINING TO TABLE A REQUIREMENTS, ITEM 9, NO PARKING AREAS WERE FOUND AT THE TIME OF SURVEY.
- AS PERTAINING TO TABLE A REQUIREMENTS, ITEM 10, THERE WAS NO OBSERVABLE EVIDENCE OF DIVISION OR PARTY WALLS AT THE TIME OF SURVEY.
- AS PERTAINING TO TABLE A REQUIREMENTS, ITEM 11, MISS DIG WAS CONTACTED ON JULY 21, 2017. USING THIS SERVICE, MISS DIG GENERATED DESIGN TICKET NO. 807202083-008, AND NOTIFIED UTILITIES IN THE PROJECT AREA TO PROVIDE DRAWINGS AND MAPS REGARDING LOCATION OF UNDERGROUND LINES WITHIN THE PROPOSED WORK AREA. THIS SURVEY REPRESENTS THE UNDERGROUND UTILITIES THAT PARTICIPATED IN THE REQUEST. ADDITIONAL UTILITIES MAY EXIST, BUT WERE NON-RESPONSIVE TO THE REQUEST.
UTILITY INFORMATION SOURCES:
COMCAST CATV FACILITIES MAP (UNDATED).
MARATHON PIPELINE UTILITIES MAP (UNDATED).
DTE GAS COMPANY FACILITIES MAP, DATED JULY 31, 2017.
AT&T FACILITIES MAP, DATED JULY 21, 2017.
- AS PERTAINING TO TABLE A REQUIREMENT, ITEM 19, OFFSITE PLOTTABLE EASEMENTS DISCLOSED IN THE RECORD DOCUMENTS (IF ANY) ARE SHOWN HEREON.
- AS PERTAINING TO GENERAL REQUIREMENTS, 4. RECORDS RESEARCH - THE CURRENT RECORD DESCRIPTIONS OF ADJOINERS, RECORDS WERE RESEARCHED BY METRO CONSULTING ASSOCIATES (NOT PROVIDED) ON JULY 24, 2017.

SURVEYORS CERTIFICATE:
For: (i) Taca Bell of America, LLC, a Delaware limited liability company, its successors and/or assigns; (ii) Chicago Title of Michigan, Inc.; (iii) Chicago Title Insurance Company; and (iv) Secured Lenders, LLC, a Michigan limited liability company.
This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2016 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 2, 3, 4, 5, 6(a), 6(b), 7(a), 7(b)(1), 8, 9, 10(a), 11, 14, 15, 19, and 20 of Table A thereof. The fieldwork as completed on August 2, 2017.
Trevor A. McMann, PS
Professional Surveyor No. 50442
T.McMann@metroca.net
Dated: 08/15/2017
TREVOR A. MCMANN
PROFESSIONAL SURVEYOR
No. 50442
MICHIGAN PROFESSIONAL SURVEYOR

LEGEND

EX. PROPERTY LINE	EX. TRANSFORMER
EX. SECTION LINE	EX. UTILITY POLE
EX. EASEMENT LINE	EX. GUY WIRE
EX. CURB/PAVEMENT	EX. UNDERGROUND TELEPHONE
EX. METAL FENCE	EX. UNDERGROUND WATER
EX. SIGN	EX. UNDERGROUND GAS
EX. LIGHT POLE	EX. CONCRETE
EX. WATER MAIN	EX. ASPHALT
EX. HYDRANT	TITLE EXCEPTION
EX. WATER VALVE	RECORD DISTANCE
EX. SANITARY SEWER	FIELD MEASURED DISTANCE
EX. SANITARY MANHOLE	SECTION CORNER
EX. STORM INLET/CATCH BASIN	FOUND MONUMENTATION AS NOTED
EX. STORM SEWER	SET 1/2" CAPPED IRON ROD
EX. OVERHEAD ELECTRIC	POINT OF COMMENCEMENT
EX. UNDERGROUND GAS	POINT OF BEGINNING
EX. GAS METER	
EX. GAS METER	
EX. UNDERGROUND TELEPHONE	
EX. TELEPHONE RISER	
EX. MAIL BOX	
EX. CABLE PEDESTAL	

METRO CONSULTING ASSOCIATES
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WT DEVELOPMENT CORPORATION

WT Development Corporation
10223 E. Cherry Bend Rd., Ste. A
Traverse City, Michigan, 49684

Contact: Bill Beckert, President
Phone: (231) 922-9250
Fax: (231) 922-9257

PROJECT CONSULTANT

NEW TITLE COMMITMENT 10.05.17

ISSUE DATE:
BUILDING TYPE:
PARCEL AREA: 47,764 S.F.
SITE NUMBER: 312529
ENTITY NUMBER: 445209

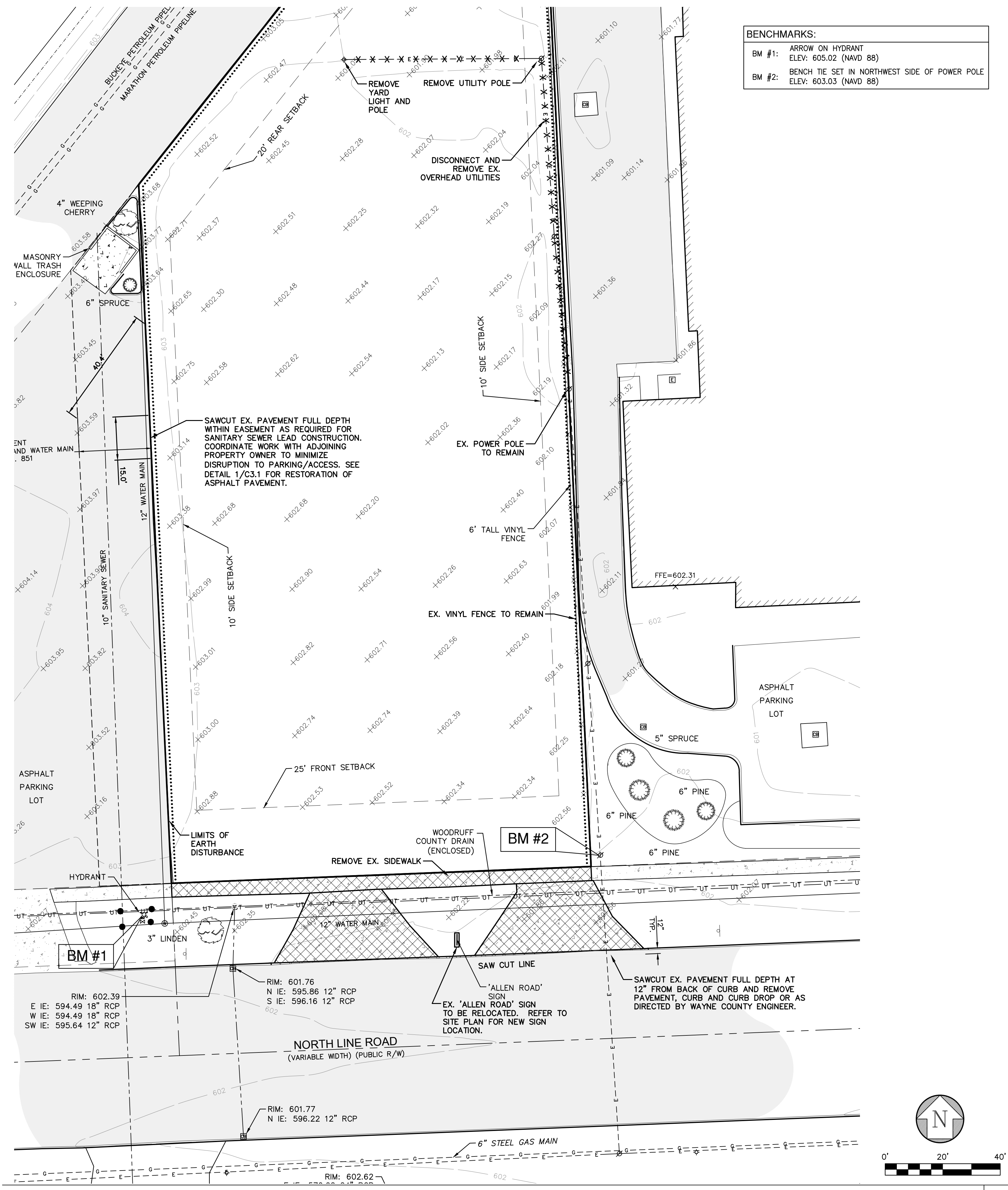
TACO BELL
NORTHLINE RD. (VACANT)
SOUTHGATE, MI 48195

MED-40 ALTA/NSPS LAND TITLE SURVEY

CO

PLOT DATE: 01.12.2018

BENCHMARKS:	
BM #1:	ARROW ON HYDRANT ELEV: 605.02 (NAVD 88)
BM #2:	BENCH TIE SET IN NORTHWEST SIDE OF POWER POLE ELEV: 603.03 (NAVD 88)



DEMOLITION PLAN 1" = 20' **12**

ALL EXISTING STREET CURBING SHOWN TO BE REMOVED SHALL BE SAWCUT TO FULL DEPTH. PROVIDE NEAT AND CLEAN CUTS PARALLEL TO THE BACK OF CURB. INTERSECTING CUTS SHALL BE SQUARE.

PRIOR TO STARTING CONSTRUCTION THE CONTRACTOR SHALL BE RESPONSIBLE TO MAKE SURE THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION OR FABRICATION SHALL BEGIN UNTIL THE CONTRACTOR HAS RECEIVED AND THOROUGHLY REVIEWED ALL PLANS AND OTHER DOCUMENTS APPROVED BY ALL OF THE PERMITTING AUTHORITIES

ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THESE PLANS, SPECIFICATIONS AND THE REQUIREMENTS AND STANDARDS OF THE LOCAL GOVERNING AUTHORITY. THE SOILS REPORT AND RECOMMENDATIONS SET FORTH THEREIN AREA PART OF THE REQUIRED CONSTRUCTION DOCUMENTS AND TAKE PRECEDENCE UNLESS SPECIFICALLY NOTED OTHERWISE ON THE PLANS. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER OF ANY DISCREPANCY BETWEEN THE SOILS REPORT & THE PLANS, ETC.

DEMOLITION/SITE CLEARING: SEE CIVIL DRAWINGS AND GEOTECHNICAL REPORT FOR EXTENT OF SITE DEMOLITION. THIS WORK SHALL INCLUDE REMOVAL OF ALL EXISTING PAVEMENTS, CURBS (U.O.N.), LIGHT POLES (INCLUDING FOOTINGS), VEGETATION (INCLUDING STUMPS), UTILITIES (NOT OTHERWISE REUSED), ETC., AS REQUIRED FOR NEW CONSTRUCTION.

SITE GRADING SHALL BE PERFORMED IN ACCORDANCE WITH THESE PLANS & SPECIFICATIONS AND THE RECOMMENDATIONS SET FORTH IN THE SOILS REPORT REFERENCED IN THIS PLAN SET. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING & REPLACING ALL SOFT, YIELDING OR UNSUITABLE MATERIALS AND REPLACING WITH SUITABLE MATERIALS AS SPECIFIED IN THE SOILS REPORT. ALL EXCAVATED OR FILLED AREAS SHALL BE COMPACTED AND MOISTURE CONDITIONED AS SPECIFIED IN THE SOILS REPORT. OWNER WILL REQUIRE COMPACTION VERIFICATION PREPARED BY A QUALIFIED SOILS ENGINEER, OR THIRD PARTY VENDOR, REGISTERED WITHIN THE STATE WHERE THE WORK IS PERFORMED, VERIFYING THAT ALL FILLED AREAS AND SUBGRADE AREAS WITHIN THE BUILDING PAD AREA AND AREAS TO BE PAVED HAVE BEEN COMPACTED IN ACCORDANCE WITH THESE PLANS AND SPECS, AND THE RECOMMENDATIONS SET FORTH IN THE SOILS REPORT.

THE SURVEY SHALL BE CONSIDERED A PART OF THESE PLANS. THE G.C. IS RESPONSIBLE FOR LOCATING IMPROVEMENTS PER THESE PLANS.

THE LOCATIONS OF UNDERGROUND FACILITIES SHOWN ON THESE PLANS ARE BASED ON FIELD SURVEYS AND LOCAL UTILITY COMPANY RECORDS. IT SHALL BE THE CONTRACTORS FULL RESPONSIBILITY TO CONTACT THE APPROPRIATE UTILITY COMPANY. NO COMPENSATIONS SHALL BE PAID TO THE CONTRACTOR FOR DAMAGE AND REPAIR TO THESE FACILITIES CAUSED BY THEIR WORK FORCE.

ALL DIMENSIONS AND GRADES SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER IF ANY DISCREPANCIES EXIST, PRIOR TO PROCEEDING WITH CONSTRUCTION, FOR NECESSARY PLAN OR GRADE CHANGES. NO EXTRA COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR WORK HAVING TO BE REDONE DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY ON THESE PLANS IF SUCH NOTIFICATION HAS NOT BEEN GIVEN.

SEE CIVIL PLANS FOR ALL WORK IN STREET RIGHT-OF-WAY. HIGHWAY (IF APPLICABLE) AND CITY ENCROACHMENT PERMITS SHALL BE OBTAINED AND PAID FOR BY THE GENERAL CONTRACTOR.

REFER TO THE LANDSCAPE DRAWINGS FOR LANDSCAPE AREAS. VERIFY FINAL PLANTING PLAN WITH OWNER PRIOR TO THE START OF WORK.

ORANGE PROTECTIVE FENCING SHALL BE PLACED AT THE DRIP LINE OF TREES TO BE SAVED.

NOT USED	5
NOT USED	6
NOT USED	7

NOT USED	3
NOT USED	4
NOT USED	8

<p>EX. SPOT ELEVATION</p> <p>EX. CONTOUR</p> <p>EX. ADJACENT PROPERTY LINE</p> <p>EX. EASEMENT LINE</p> <p>EX. CURB/PAVEMENT</p> <p>EX. FENCE</p> <p>EX. GRVEL</p> <p>EX. TREE LINE</p> <p>EX. TREE (CONIFEROUS)</p> <p>EX. TREE (DECIDUOUS)</p> <p>EX. SIGN</p> <p>EX. WATER MAIN</p> <p>EX. WATER VALVE</p> <p>EX. HYDRANT</p> <p>EX. STORM SEWER</p> <p>EX. CATCH BASIN</p> <p>EX. STORM MANHOLE</p> <p>EX. SANITARY SEWER</p> <p>EX. SANITARY MANHOLE</p> <p>EX. UNDERGROUND GAS</p> <p>EX. GAS VALVE</p> <p>EX. OVERHEAD ELECTRIC</p> <p>EX. UTILITY POLE</p> <p>EX. GUY WIRE</p> <p>EX. CONCRETE</p> <p>EX. ASPHALT</p>	
LEGEND	

Professional Surveying & Engineering
P.O. Box 193
1275 McGregor Way, Grawn, MI 49637
PH: 231.943.0050 FAX: 231.943.0051
www.landtechps.com

WT Development Corporation
10223 E. Cherry Bend Rd., Ste. A
Traverse City, Michigan, 49684
Contact: Bill Beckett, President
Phone: (231) 922-9250
Fax: (231) 922-9257
PROJECT CONSULTANT

ISSUE DATE:	06.19.2018
BUILDING TYPE:	EXPLORER LITE
PLAN VERSION:	MEDIUM 40
SITE NUMBER:	312529
ENTITY NUMBER:	445209

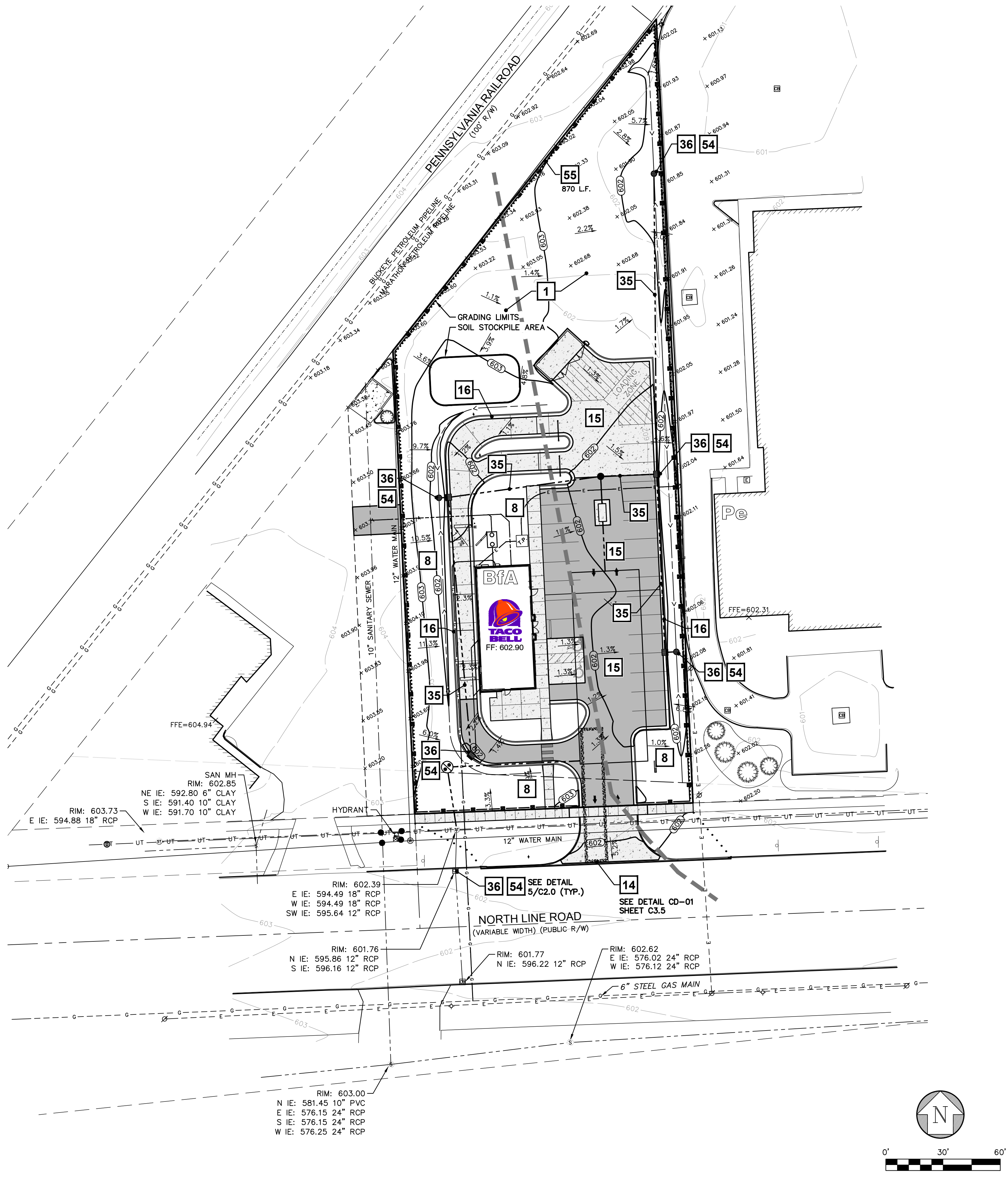
TACO BELL

19578 NORTH LINE ROAD
SOUTHGATE, MI 48195

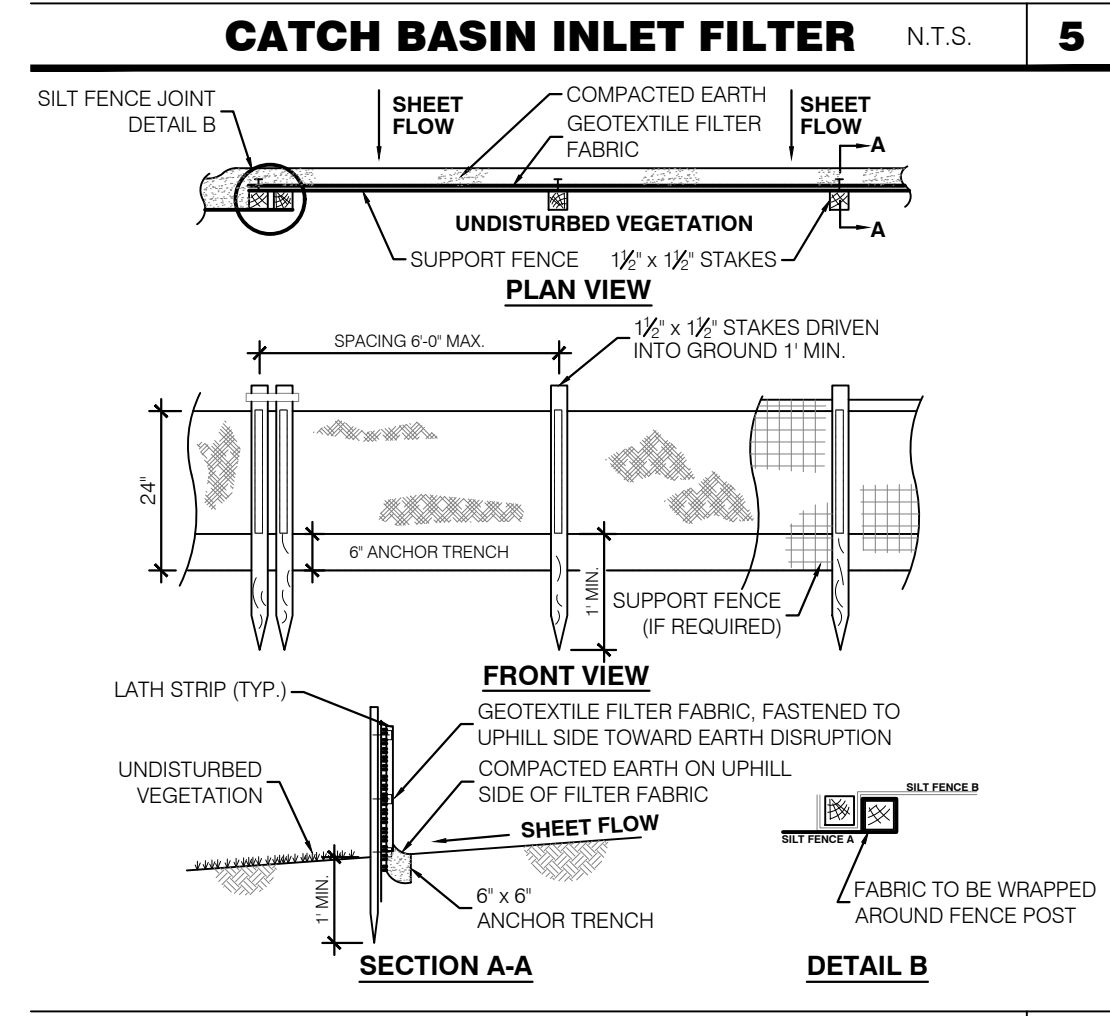
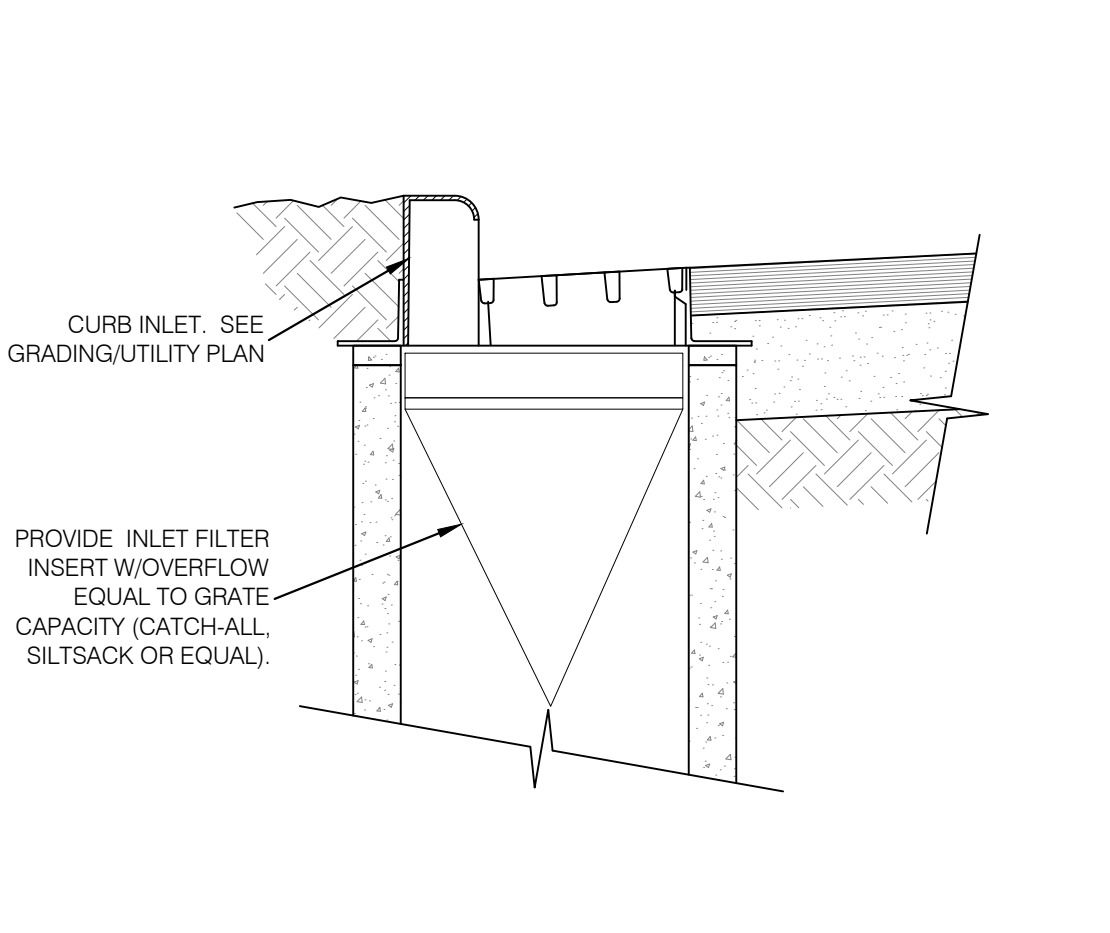
EXISTING CONDITIONS/DEMOLITION PLAN

C1.0

PLANT DATE: 08.13.2018



SOIL EROSION CONTROL PLAN 1" = 30' **12**



SILT FENCE N.T.S. **6**

KEY	DETAIL	CHARACTERISTICS
1	Stripping & Stockpiling Topsoil	Topsoil may be stockpiled above borrow areas to act as a diversion structure should be temporarily seeded
8	Sodding	Provides immediate protection. Can be used on steep slopes where seed may be difficult to establish. Easy to place; may be repaired if damaged. Should include prepared topsoil bed.
11	Roughened Surface	Reduces velocity and increases infiltration rates. Collects sediment. Holds water, seed, and mulch better than smooth surfaces.
14	Aggregate Cover	Stabilizes surface, thus minimizing erosion. Permits construction traffic in adverse weather. May be used as part of permanent base construction of paved areas.
15	Paving	Protects areas which cannot otherwise be protected, but increases runoff volume and velocity. Irregular surface will help slow velocity.
16	Curb & Gutter	Keeps high velocity runoff on paved areas from leaving paved surface. Collects and conducts runoff to enclosed drainage system or prepared drainage way.
35	Storm Sewer	System removes collected runoff from site, particularly from paved areas. Can accept large concentrations of runoff. Conducts runoff to municipal sewer system or stabilized outfall location. Use catch basins to collect sediment.
36	Catch Basin, Drain Inlet	Collects high velocity concentrated runoff. May use filter cloth over inlet.
54	Inlet Filter	Inexpensive and easy to construct. Provides immediate protection. Protects areas around inlets from erosion.
55	Silt Fence	Filters and detains runoff.

MICHIGAN UNIFIED KEYING SYSTEM **8**

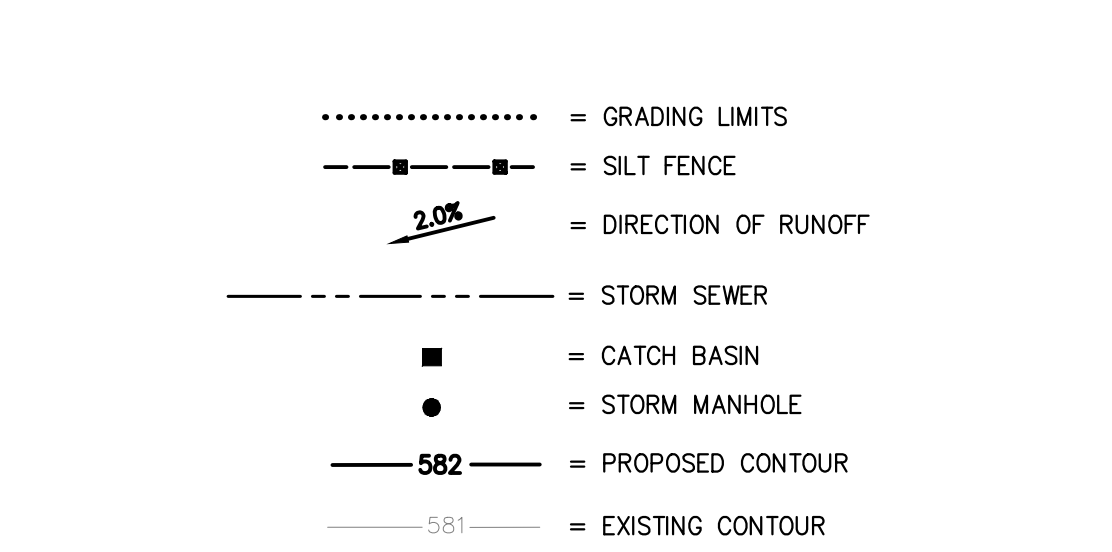
GENERAL SOIL EROSION CONTROL NOTES:
 CONTRACTOR SHALL OBTAIN SOIL EROSION PERMIT PRIOR TO ANY CONSTRUCTION.
 THIS PROJECT SHALL BE CONSTRUCTED IN COMPLIANCE WITH THE SOIL EROSION AND SEDIMENTATION CONTROL ACT, PART 91 OF PUBLIC ACT 451 OF 1994, AS AMENDED.
 ALL GRADING, EROSION, AND SEDIMENT CONTROL AND RELATED WORK UNDERTAKEN ON THIS SITE SHALL BE IN ACCORDANCE WITH LOCAL JURISDICTION.
 THE CONTRACTOR IS REQUIRED TO KEEP A COPY OF THE CERTIFIED PLAN AT THE CONSTRUCTION SITE.
 CONTRACTOR SHALL MAINTAIN ALL SOIL EROSION CONTROL MEASURES. THE SOIL EROSION CONTROLS SHALL BE INSPECTED AND MAINTAINED WEEKLY AND AFTER EVERY STORM EVENT.
 ALL SOIL EROSION CONTROL PRACTICES TO BE INSTALLED PRIOR TO ANY MAJOR SOIL DISTURBANCE, OR IN THEIR PROPER SEQUENCE AND MAINTAINED FOR ONE YEAR AFTER COMPLETION OF THE APPROVED PLAN OR UNTIL SUCH MEASURES ARE PERMANENTLY STABILIZED AS DETERMINED BY THE TOWNSHIP ENGINEER.
 IMMEDIATELY FOLLOWING INITIAL DISTURBANCE OR ROUGH GRADING, ALL CRITICAL AREAS SUBJECT TO EROSION (I.E., STEEP SLOPES) WILL RECEIVE APPROPRIATE VEGETATIVE COVER AS STATED IN THE CONSTRUCTION SEQUENCE.
 DURING CONSTRUCTION, ANY ADDITIONAL CONTROL MEASURES AS DEEMED NECESSARY TO PREVENT EROSION OR CONTROL SEDIMENT BEYOND THOSE MEASURES SHOWN ON THE APPROVED PLANS SHALL BE INSTALLED OR EMPLOYED AT THE DIRECTION OF THE ENGINEER.
 THE CONTRACTOR SHALL BE RESPONSIBLE FOR MATCHING EXISTING FACILITIES TO AVOID ANY ABRUPT OR APPARENT CHANGES IN GRADES OR CROSS SLOPES, LOW SPOTS, OR HAZARDOUS CONDITIONS.
 GRADING AT THE BOUNDARIES SHALL BE DONE SO AS NOT TO OBSTRUCT THE RUNOFF OF STORM WATER FROM ADJACENT PROPERTIES.
 SOD AND HYDROSEEDING SHALL BE DONE IN ACCORDANCE WITH THE LANDSCAPING PLAN. ALL OTHER DISTURBED AREAS SHALL BE TOPSOILED, HYDROSEEDED, FERTILIZED AND MULCHED.
 PERMANENT VEGETATION TO BE SEEDING ON ALL EXPOSED AREAS WITHIN FIVE (5) DAYS AFTER FINAL GRADING. MULCH TO BE USED AS NECESSARY FOR PROTECTION UNTIL SEEDING IS ESTABLISHED.

- MAINTENANCE NOTES:**
- ALL DIRT AND MUD TRACKED ON TO ROADS FROM THIS SITE DUE TO CONSTRUCTION SHALL BE REMOVED ON A DAILY BASIS BY THE CONTRACTOR.
 - SHOULD DUST BECOME A PROBLEM AT THE SITE, THE CONTRACTOR SHALL PROVIDE WATERING OR OTHER METHOD OF DUST CONTROL ACCEPTABLE TO THE LOCAL SOIL EROSION CONTROL OFFICE.
 - TEMPORARY STONE ACCESS DRIVE:
 - CRUSHED CONCRETE SHALL BE PLACED ON GEOTEXTILE FILTER CLOTH.
 - ADDITIONAL LAYERS OF STONE OR CRUSHED CONCRETE SHALL BE ADDED INSTALLED LAYERS BECOME COMPACTED.
 - STEPS SHALL BE TAKEN TO REPAIR IF RUTS OR POOLING WATER APPEAR.
 - SILT FENCE:
 - SILT FENCE SHALL BE INSPECTED WEEKLY UNDER NORMAL CONDITIONS, WITHIN 24 HOURS OF RAINFALL AND DAILY DURING PROLONGED RAIN. REQUIRED MAINTENANCE SHALL BE PROMPTLY PROVIDED.
 - BUILT UP SEDIMENT SHALL BE REMOVED WHEN SEDIMENT ACCUMULATES TO 1/3 TO 1/2 OF THE HEIGHT OF THE SILT FENCE AND AFTER EACH STORM EVENT.
 - IF SILT FABRIC DECOMPOSES OR BECOMES INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USEABLE LIFE, AND THE BARRIER IS STILL REQUIRED, THE FABRIC SHALL BE PROMPTLY REPLACED.
 - INLET FILTERS:
 - INLET FILTERS SHALL BE INSPECTED WEEKLY UNDER NORMAL CONDITIONS, WITHIN 24 HOURS OF RAINFALL AND DAILY DURING PROLONGED RAIN.
 - BUILT-UP SEDIMENT AND DEBRIS SHALL BE REMOVED PROMPTLY.
 - IF FILTER FABRIC DECOMPOSES OR BECOMES INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USEABLE LIFE, AND THE BARRIER IS STILL REQUIRED, THE FABRIC SHALL BE PROMPTLY REPLACED.

EROSION CONTROL NOTES **2**

CONSTRUCTION SEQUENCE	EROSION CONTROL MEASURES
APRIL 2018 - OCTOBER 2018	SOIL EROSION CONTROL MEASURES
PRIOR TO CONSTRUCTION	-IDENTIFY CONSTRUCTION LIMITS -INSTALL SILT FENCE -INSTALL INLET FILTERS (EXISTING DRAINAGE STRUCTURES)
DEMOLITION	-SAWCUT AND REMOVE CURBING, ASPHALT, AND UTILITIES, CLEAR TREES/STRIP VEGETATION AND TOPSOIL -CONSTRUCT STONE ACCESS DRIVE -MAINTAIN CONTROL MEASURES
CONSTRUCT UTILITIES, BUILDING	-INSTALL INLET FILTERS (NEW DRAINAGE STRUCTURES) -MAINTAIN CONTROL MEASURES
PAVE LOT, CONSTRUCT CURBING	-REMOVE STONE ACCESS DRIVE -MAINTAIN OTHER CONTROL MEASURES
FINAL GRADING, INSTALL SIDEWALK	-MAINTAIN CONTROL MEASURES
SITE RESTORATION AND LANDSCAPING	-TOPSOIL AND SOD -INSTALL LANDSCAPING -MAINTAIN CONTROL MEASURES
AFTER DISTURBED AREAS HAVE STABILIZED	-REMOVE SILT FENCE -REMOVE INLET FILTERS ON CATCH BASINS

CONSTRUCTION SEQUENCE **3**



NRCS SOILS LEGEND

BfA	BLOUNT LOAM, ERIE-HURON LAKE PLAIN, 0 TO 2 PERCENT SLOPES
Pe	PEWAMO LOAM
---	SOIL LINE

LEGEND **4**

△	ELEC. ROUTE/MH PER DTE 08.06.18
△	ADA PWMT TYPE 08.13.18
△	
△	
△	
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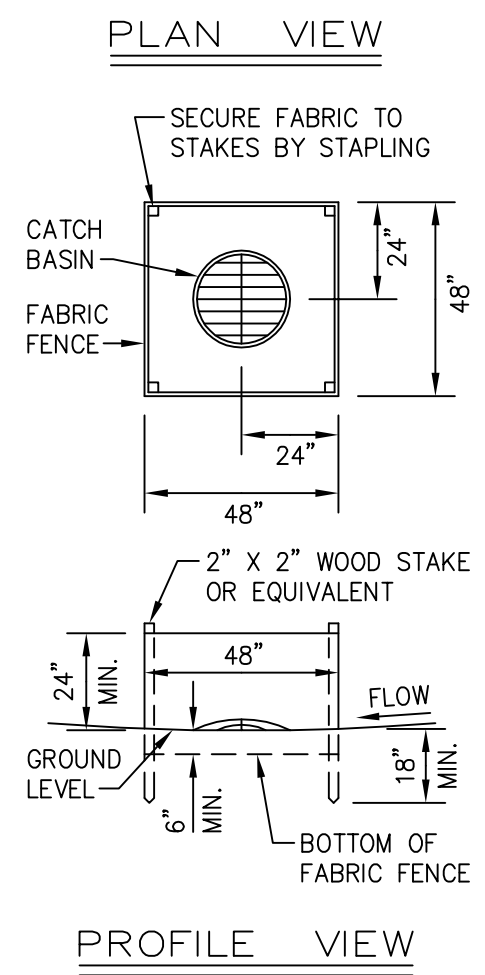
ISSUE DATE:	06.19.2018
BUILDING TYPE:	EXPLORER LITE
PLAN VERSION:	MEDIUM 40
SITE NUMBER:	312529
ENTITY NUMBER:	445209

TACO BELL
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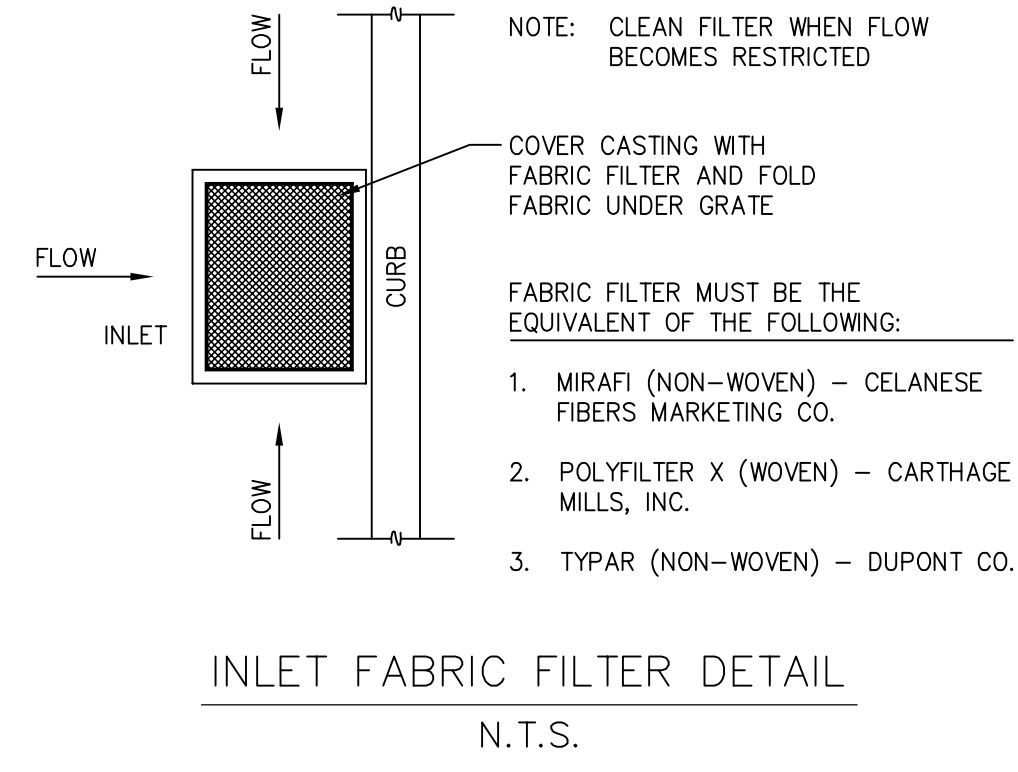


SOIL EROSION CONTROL PLAN

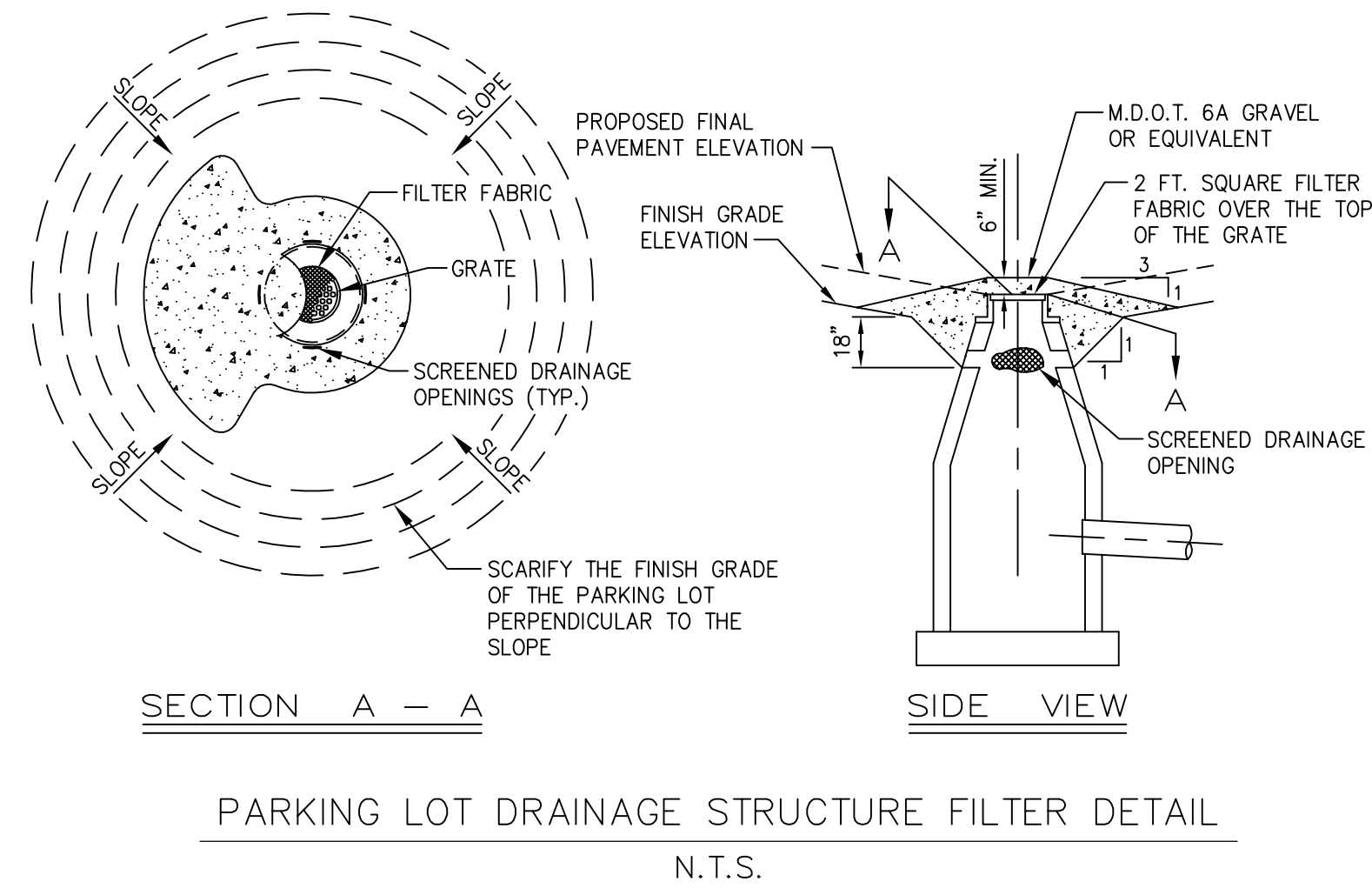
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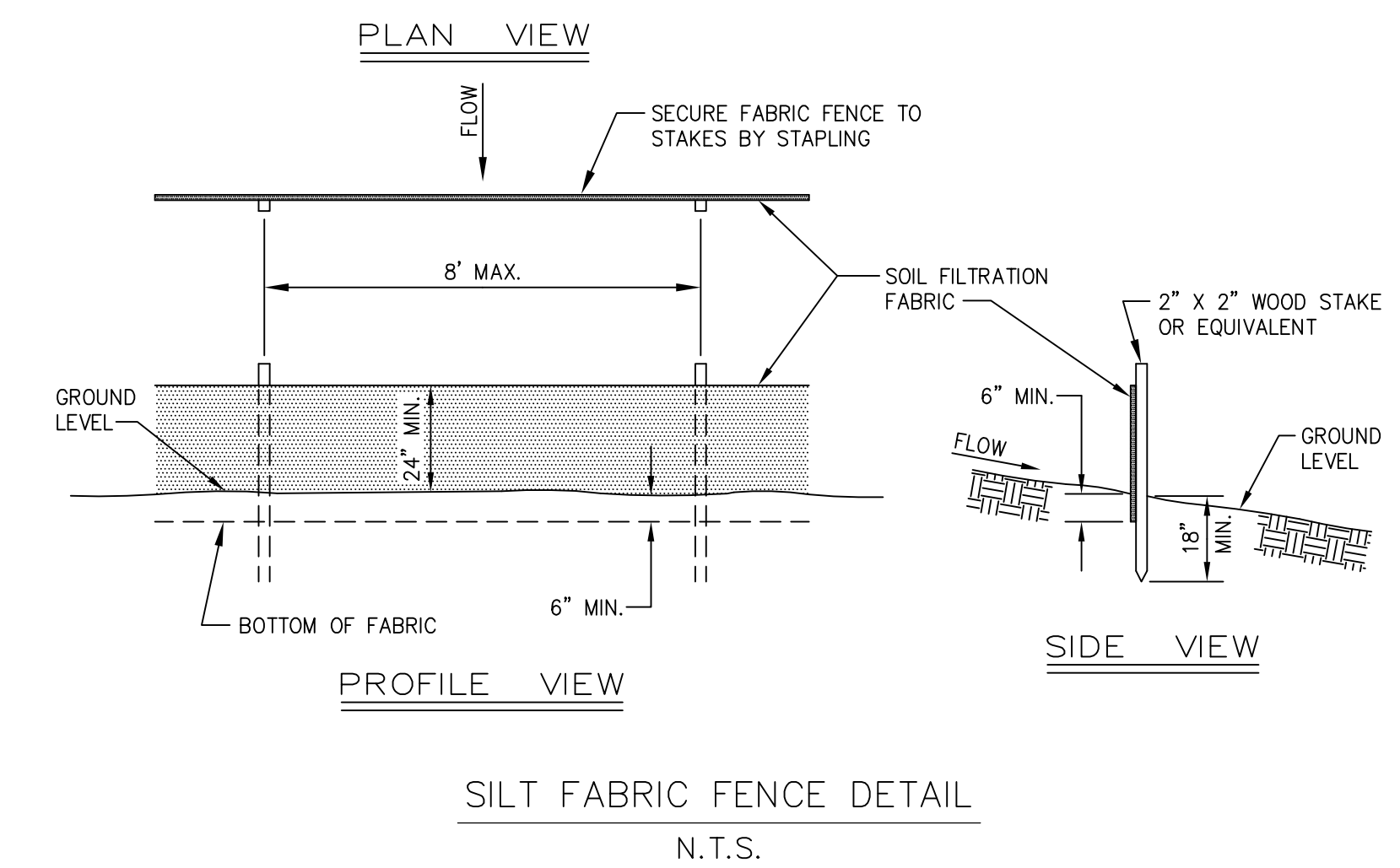
DITCH CATCH BASIN FILTER DETAIL
N.T.S.



INLET FABRIC FILTER DETAIL
N.T.S.



PARKING LOT DRAINAGE STRUCTURE FILTER DETAIL
N.T.S.



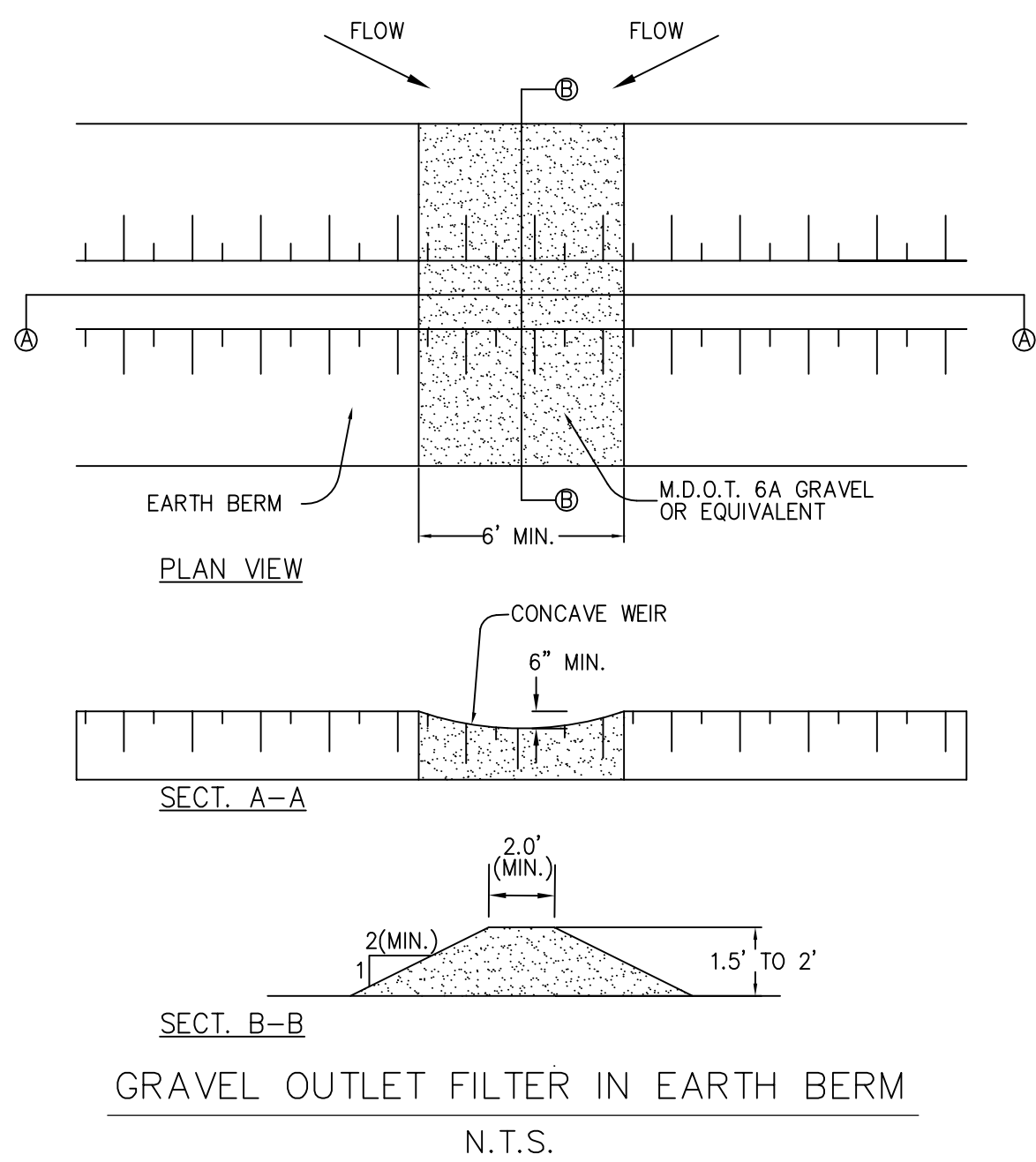
SILT FABRIC FENCE DETAIL
N.T.S.

**CITY OF SOUTHGATE
STANDARD SOIL EROSION AND SEDIMENTATION CONTROL NOTES**

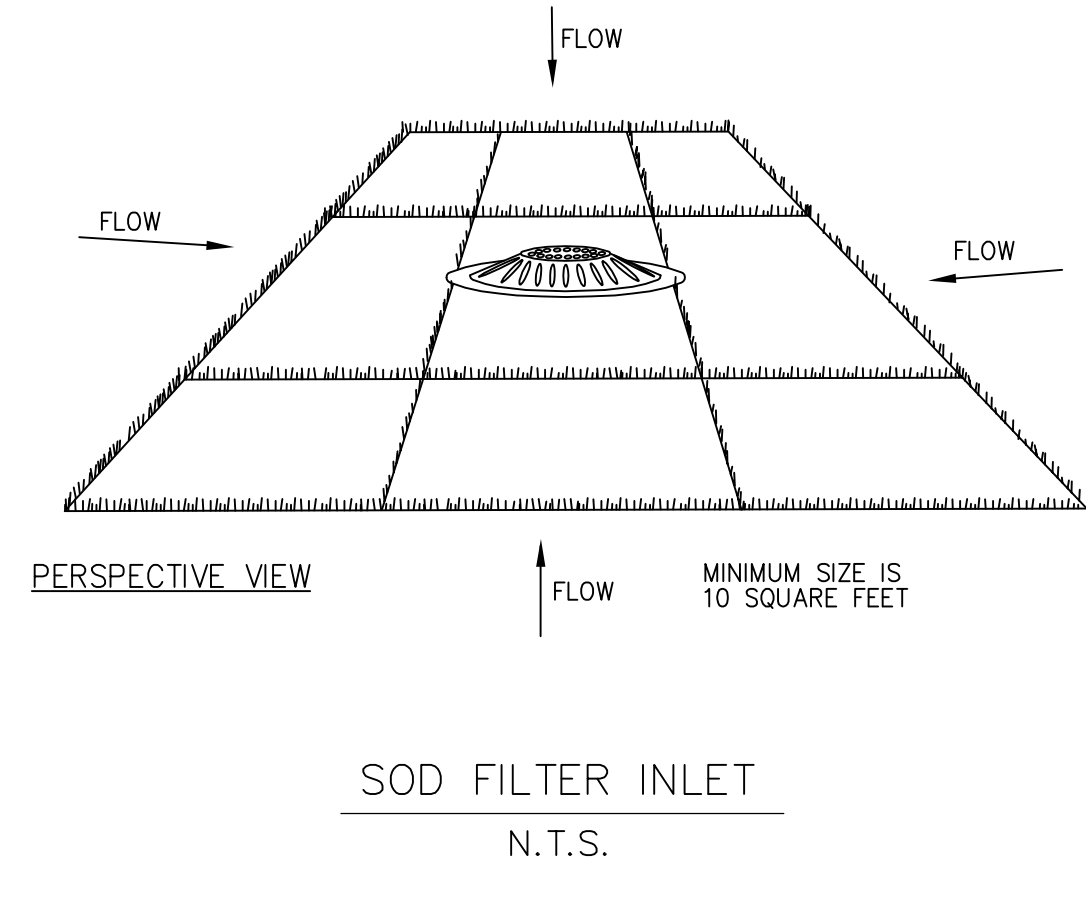
THE CONTRACTOR SHALL NOT CONDUCT ANY EARTH MOVEMENT OR EXCAVATION UNTIL SUCH TIME A VALID SOIL EROSION CONTROL PERMIT HAS BEEN OBTAINED.

THE CONTRACTOR SHALL CONDUCT HIS OPERATION IN SUCH MANNER AS TO MINIMIZE EROSION AND SEDIMENTATION OF THE DISTURBED SOIL WITHIN THE CONSTRUCTION AREA. HE THE CONTRACTOR SHALL MEET ALL REQUIREMENTS OF PART 91, SOIL EROSION AND SEDIMENTATION CONTROL, OF THE NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION ACT, 1994 PA 451, AS AMENDED AS WELL AS THOSE REQUIREMENTS OF THE COUNTY AND THE CITY. ALL SESC PLANS MUST MEET THE MINIMUM REQUIREMENTS OF RULE 1703 OF THE ADMINISTRATIVE RULES FOR PART 91. THE CONTRACTOR SHALL ALSO MEET THE FOLLOWING:

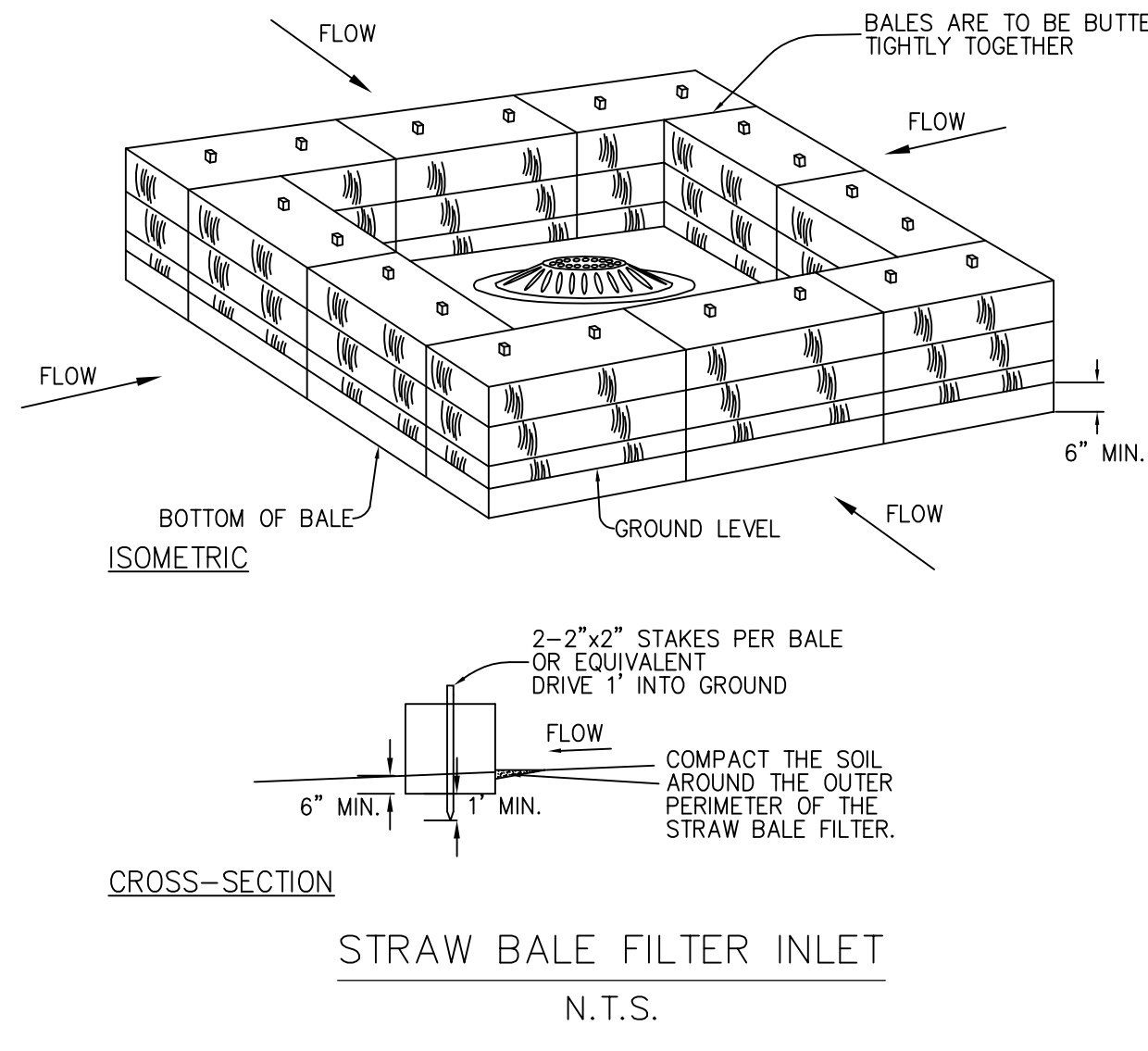
1. PROMPTLY REMOVE ALL SOIL, MISCELLANEOUS DEBRIS AND OTHER MATERIAL SPILLED, DUMPED OR OTHERWISE DEPOSITED ON PUBLIC STREETS DURING TRANSIT TO AND FROM THE CONSTRUCTION SITE.
2. PROVIDE TEMPORARY SILT SACKS, SILT FENCE AND OTHER SOIL EROSION CONTROL MEASURES AS SHOWN ON THE PLANS OR AS DIRECTED BY THE CITY ENGINEER.
3. ALL CONSTRUCTION (PUBLIC AND PRIVATE) SHALL CONFORM TO THE CURRENT CITY OF SOUTHGATE ORDINANCE FOR SOIL EROSION CONTROL ALONG WITH THE CURRENT STANDARDS AND SPECIFICATIONS OF THE CITY OF SOUTHGATE.
4. THE CONTRACTOR SHALL MAINTAIN ALL SOIL EROSION CONTROL MEASURES ON A REGULAR BASIS. AFTER EACH RAIN EVENT THE CONTRACTOR SHALL INSPECT AND REMOVE ALL SEDIMENT FROM THE CATCH BASIN, ROADS, ETC. IN ADDITION TO REMOVING ACCUMULATED SILT AFTER EACH RAIN EVENT THE CONTRACTOR SHALL REMOVE THE SILT ON A REGULAR BASIS OR AS DIRECTED BY THE CITY ENGINEER.
5. NO EXCAVATION OR SITE CLEARING WILL BE ALLOWED UNTIL THE CONTRACTOR HAS SECURED A SOIL EROSION AND SEDIMENTATION CONTROL PERMIT FROM THE CITY OF SOUTHGATE.
6. WHENEVER POSSIBLE THE CONTRACTOR SHALL DIRECT ALL RUNOFF WATER TO THE TEMPORARY SILT SACKS LOCATED WITHIN THE CATCH BASINS.
7. ALL DISCHARGE WATER FROM PUMPING OPERATIONS SHALL BE DIRECTED TO THE SILT SACKS OR HEAVILY GRASSED AREAS.
8. ALL CONSTRUCTION INCLUDING OPEN CUT, TUNNEL, DIRECTIONAL DRILL, CONDUIT, STRUCTURES, SURFACE RESTORATION AND REMOVAL OF EXCESS EXCAVATED MATERIAL SHALL BE ACCOMPLISHED IN ONE CONTINUOUS OPERATION. FINAL OR TEMPORARY STABILIZATION SHALL FOLLOW COMPLETION OF OPEN CUT CONSTRUCTION.
9. WHERE IT IS NOT POSSIBLE TO PERMANENTLY STABILIZE A DISTURBED AREA OR WHERE THE GRADING ACTIVITY CEASES FOR MORE THAN FIVE (5) CALENDAR DAYS, TEMPORARY EROSION CONTROL MEASURES SHALL BE INSTALLED BY THE CONTRACTOR AS DIRECTED BY THE CITY ENGINEER. ALL TEMPORARY MEASURES MUST BE MAINTAINED BY THE CONTRACTOR UNTIL PERMANENT STABILIZATION HAS BEEN ESTABLISHED.
10. PERMANENT SOIL EROSION CONTROL MEASURES FOR ALL DISTURBED AREAS SHALL BE COMPLETED IN FIVE (5) CALENDAR DAYS FOLLOWING COMPLETION OF FINAL GRADING.
11. THE CONTRACTOR SHALL ADHERE TO THE FOLLOWING GENERAL CONSTRUCTION PRINCIPLES:
 - A. WHENEVER FEASIBLE, NATURAL VEGETATION SHALL BE RETAINED AND PROTECTED.
 - B. WHERE INADEQUATE VEGETATION EXISTS, TEMPORARY OR PERMANENT VEGETATION MUST BE ESTABLISHED.
12. FOLLOWING CONSTRUCTION AND STABILIZATION OF THE SITE IT WILL BE THE RESPONSIBILITY OF THE OWNER TO MAINTAIN THE SITE. THIS INCLUDES REMOVAL OF SEDIMENT FROM THE STORM SEWER AND DETENTION FACILITIES. BEST MANAGEMENT PRACTICES AND POST CONSTRUCTION MEASURES MUST BE IN PLACE AND MAINTAINED. THESE MEASURES SHALL INCLUDE CATCH BASIN FILTERS SUCH AS FLEXSTORM INLET FILTERS AS MANUFACTURED BY ADS OR CONTECH TRITON CATCH BASIN INSERTS OR AS APPROVED EQUAL BY THE CITY ENGINEER.



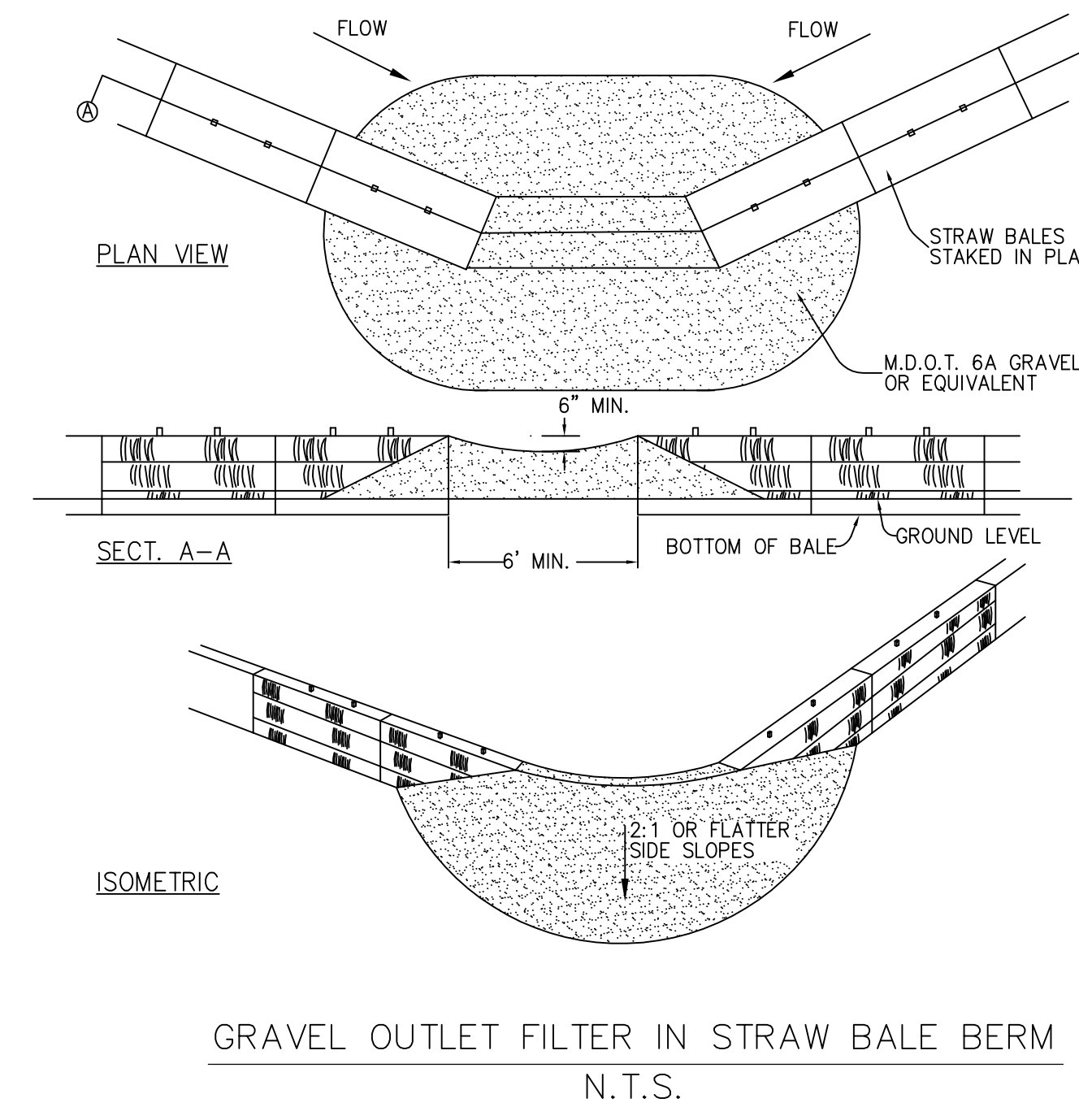
GRAVEL OUTLET FILTER IN EARTH BERM
N.T.S.



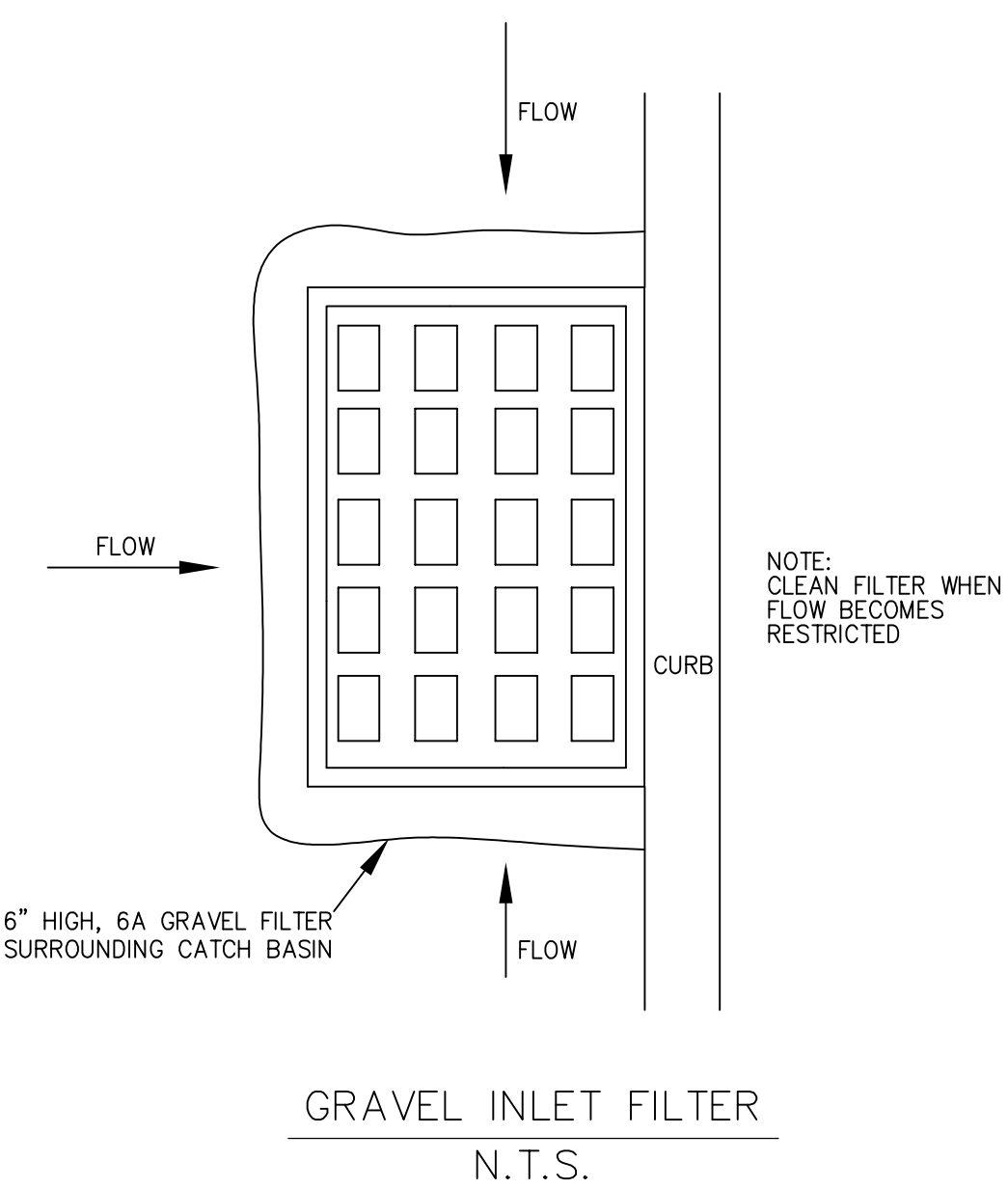
SOD FILTER INLET
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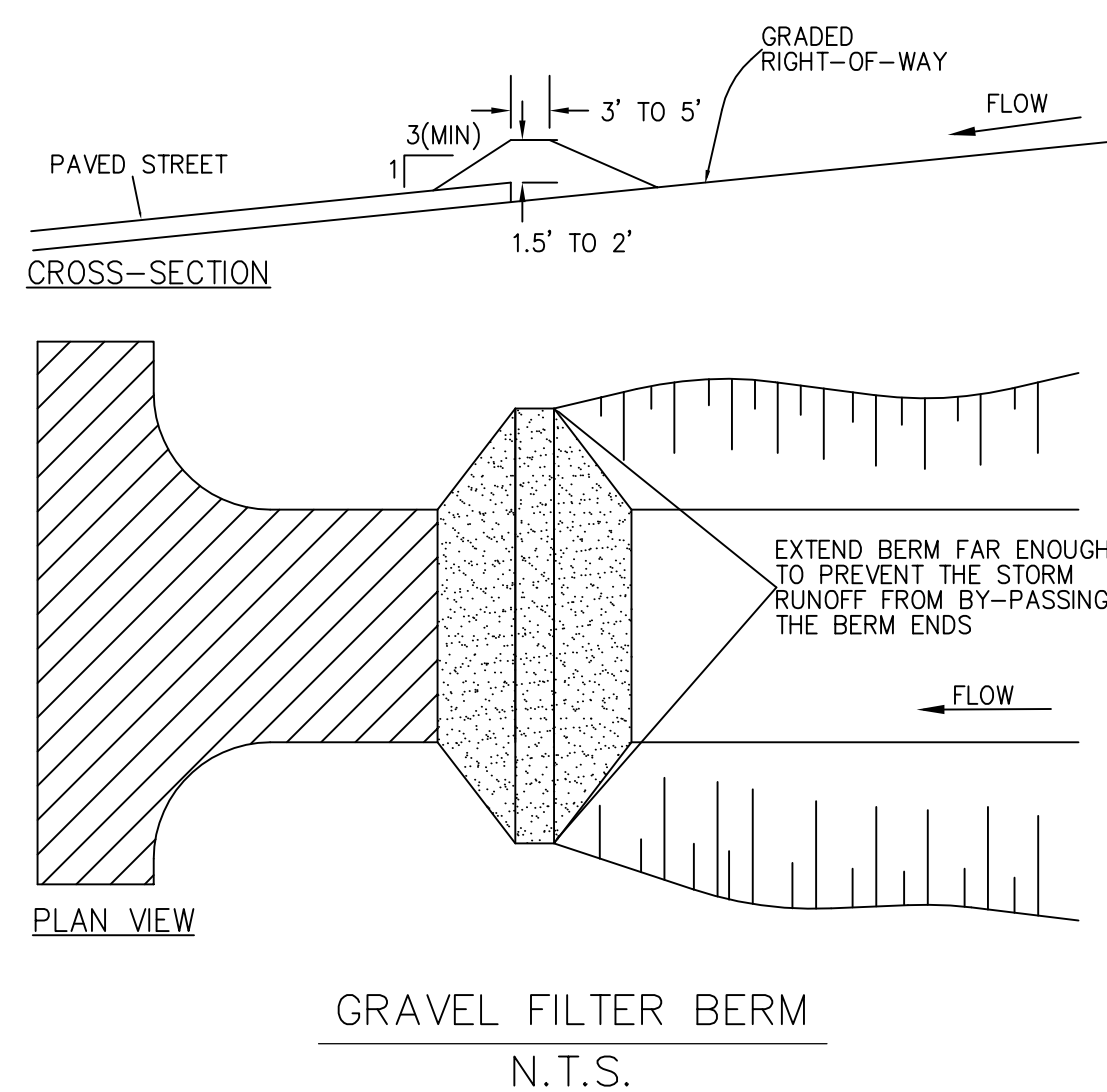
STRAW BALE FILTER INLET
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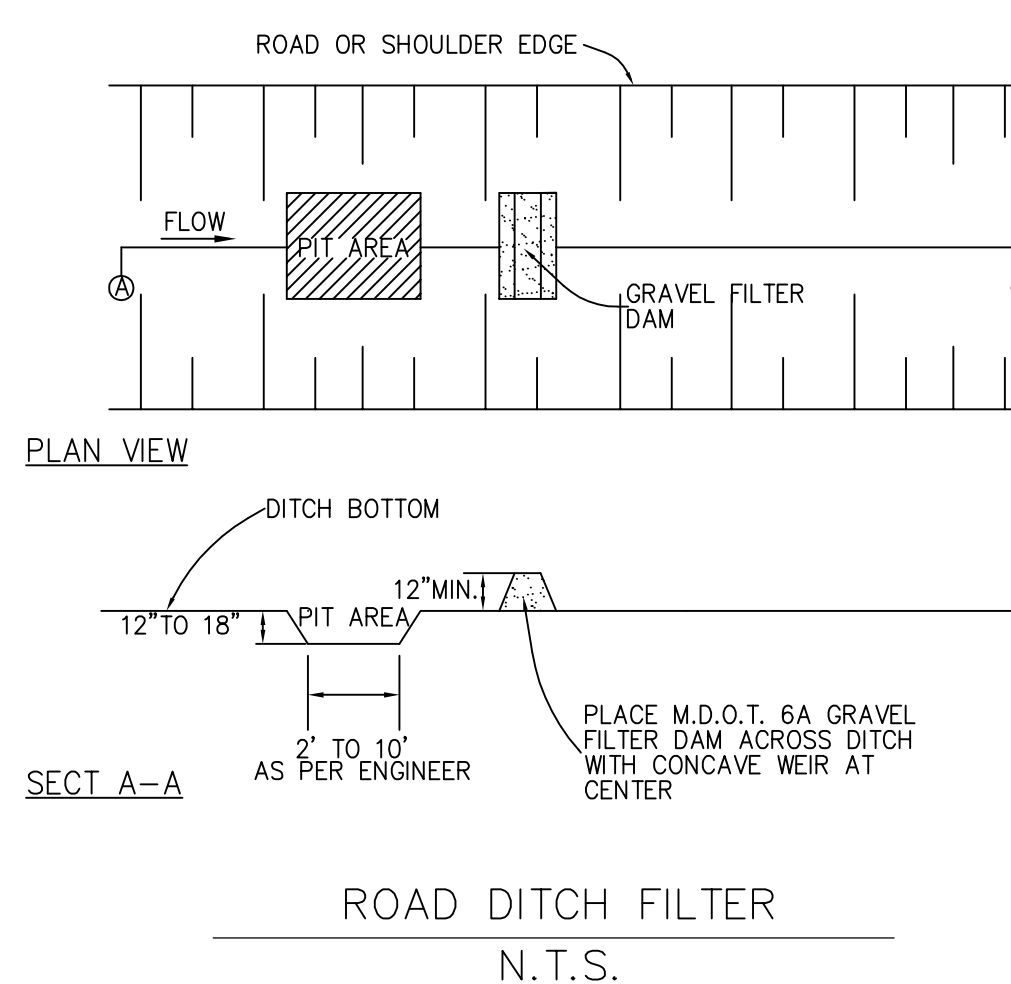
GRAVEL OUTLET FILTER IN STRAW BALE BERM
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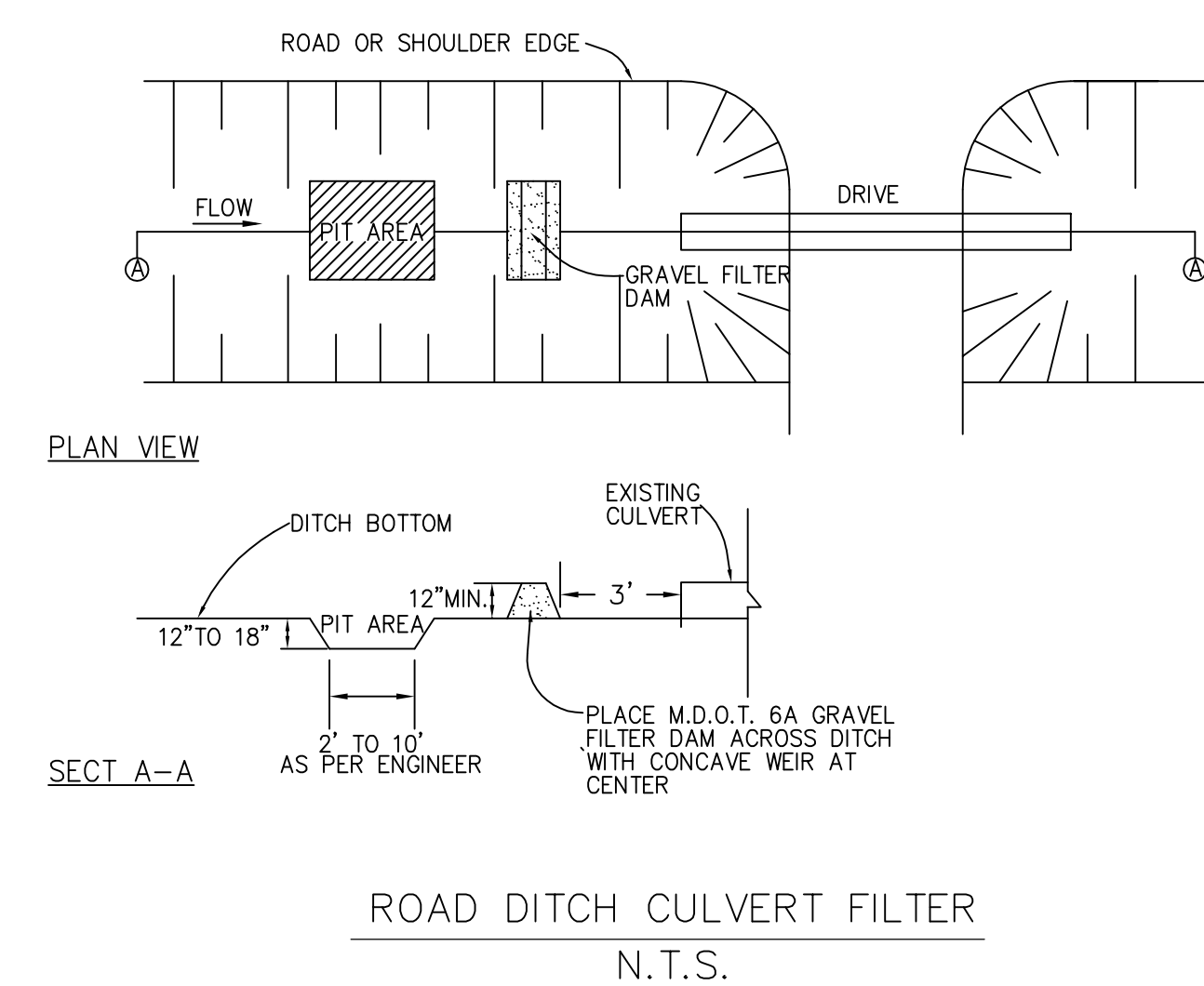
GRAVEL INLET FILTER
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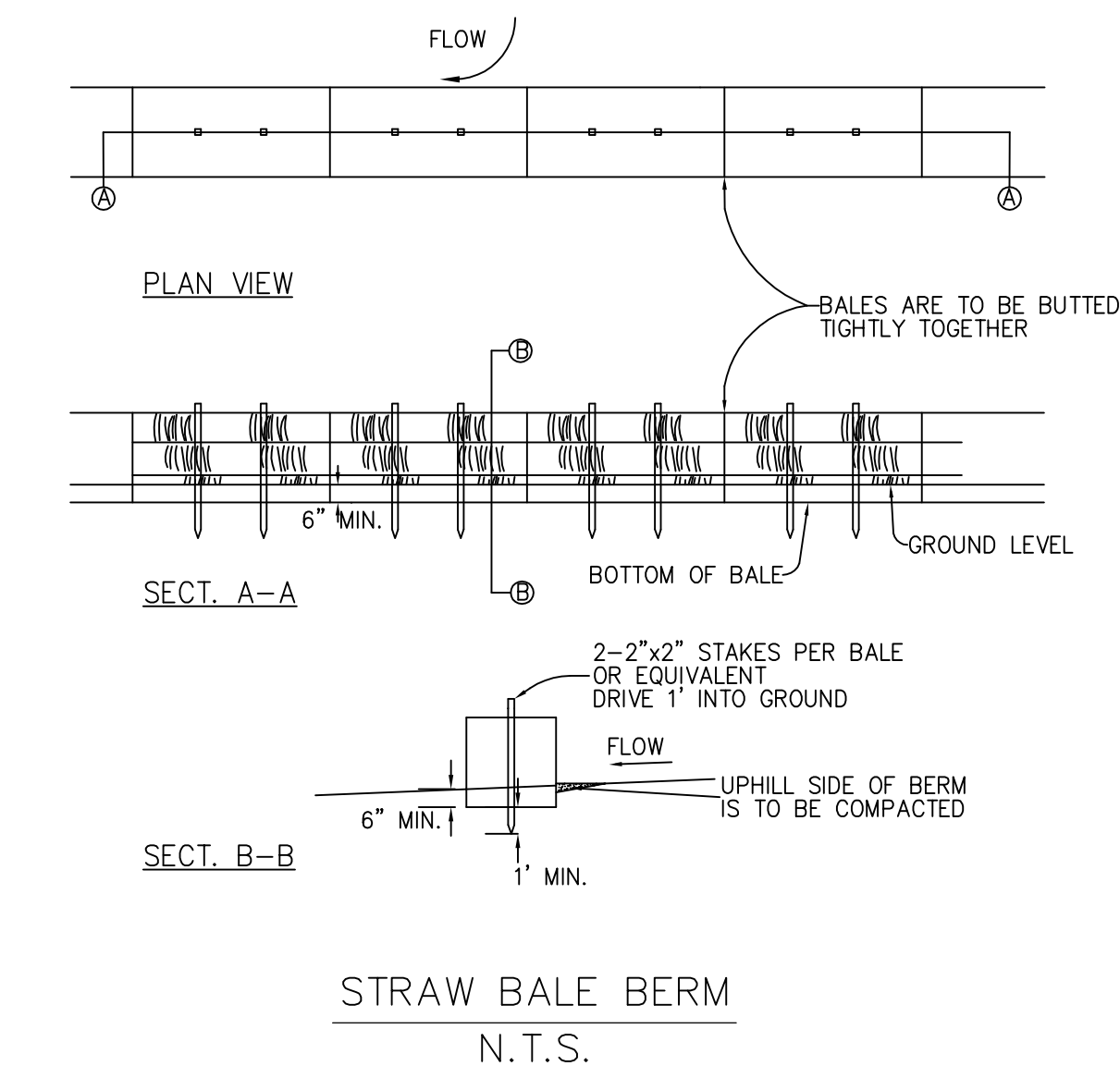
GRAVEL FILTER BERM
N.T.S.



ROAD DITCH FILTER
N.T.S.



ROAD DITCH CULVERT FILTER
N.T.S.



STRAW BALE BERM
N.T.S.

PROJECT NUMBER:
SESC-1

DATE:
12-1-08

SCALE:
N/A

DESIGNED BY:
JMM

DRAWN BY:
JMM

CHECKED BY:

APPROVED BY:

REVISIONS

4-17-12

Standard Notes Updated

ENGINEERING THE FUTURE:
13500 REECK ROAD
SOUTHGATE, MI 48195
(734) 759-1600
FAX (734) 282-6566
WWW.HENGINEERS.COM

HENNESSEY ENGINEERS, INC.

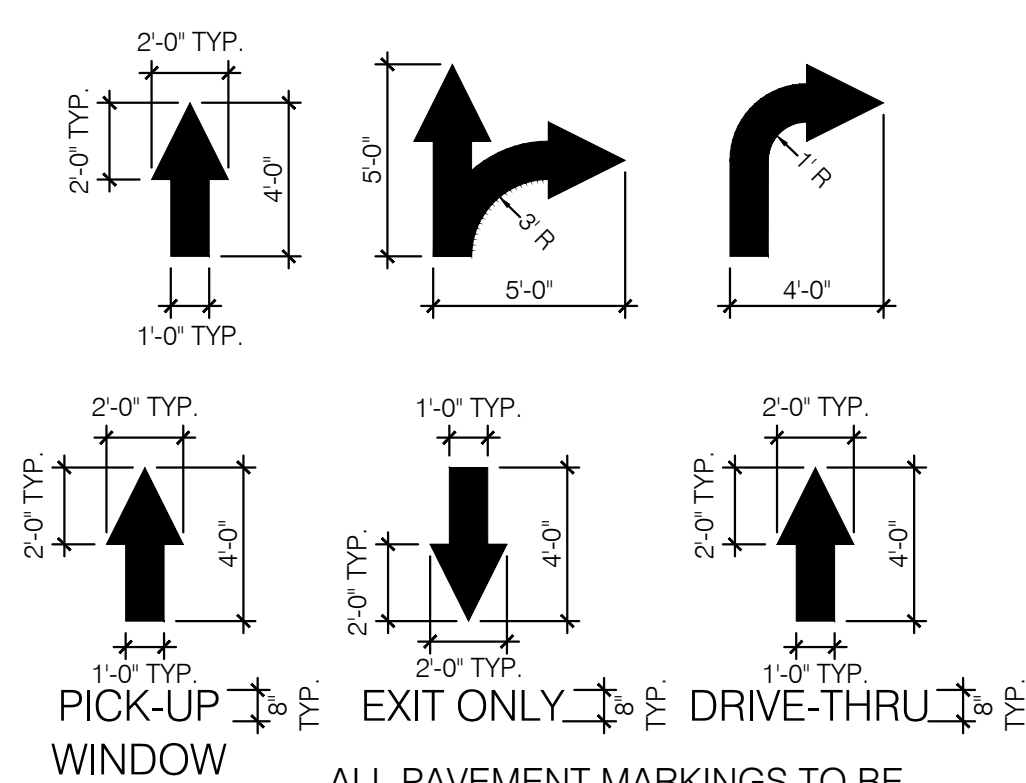
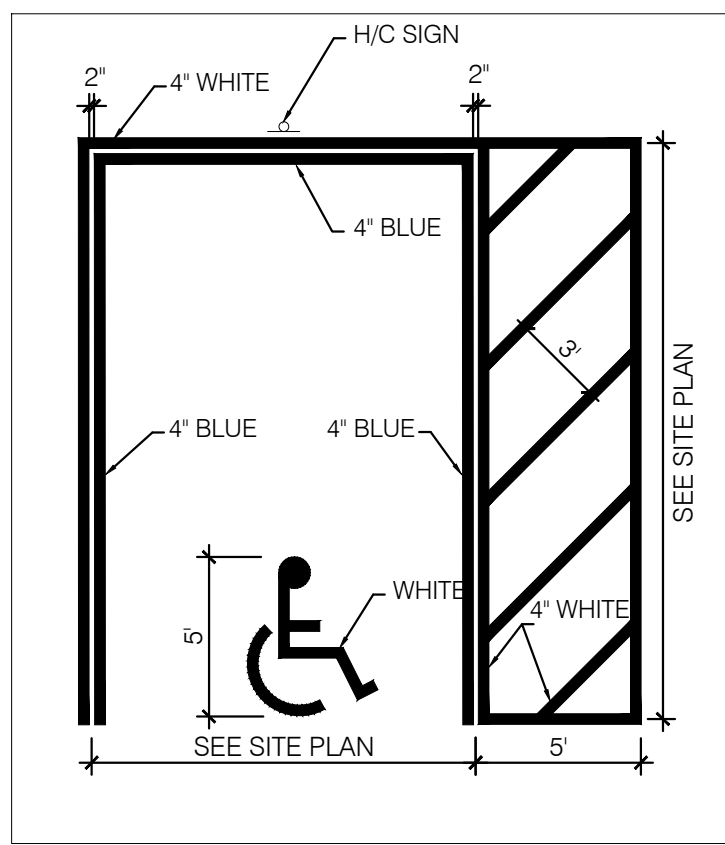
TITLE
SOIL EROSION DETAILS

STANDARD DETAILS

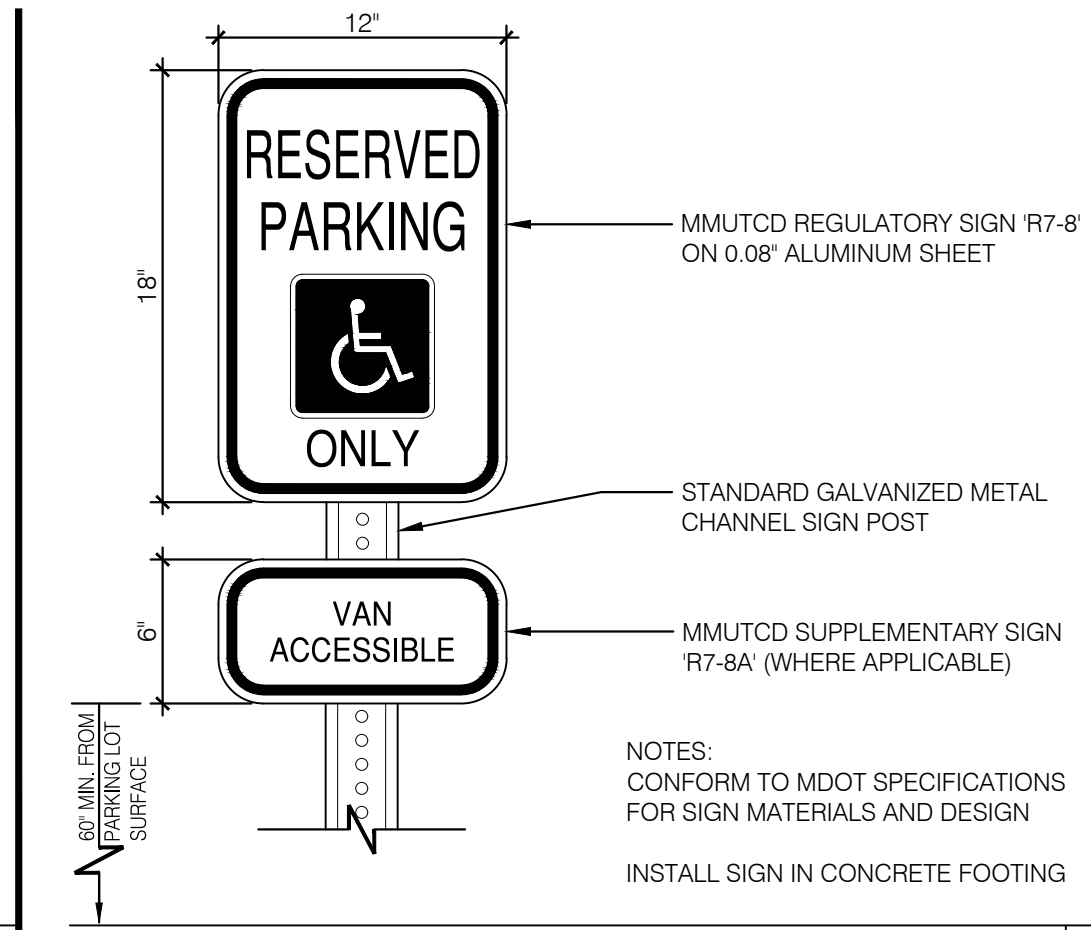
CITY OF SOUTHGATE

WAYNE COUNTY, MICHIGAN

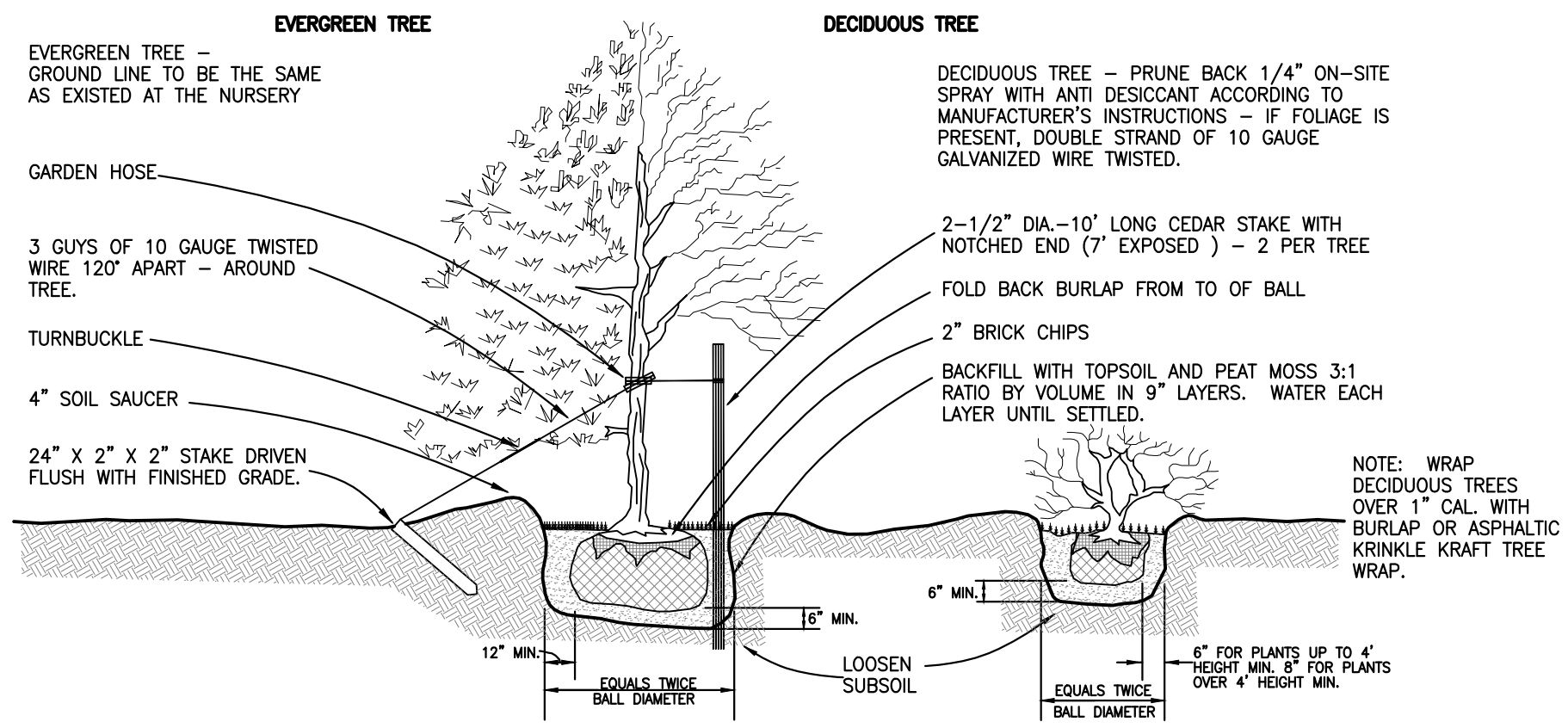
SHEET
SESC-1



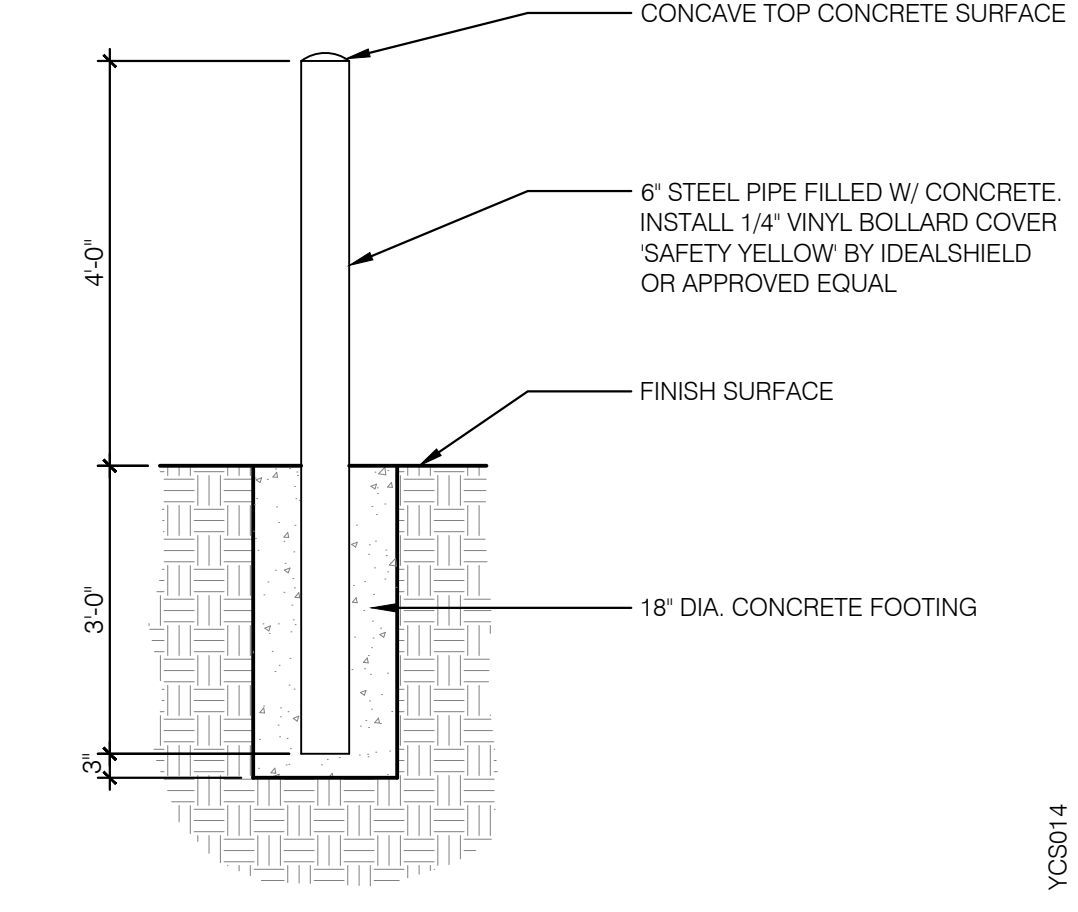
PAVEMENT MARKINGS N.T.S. **13**



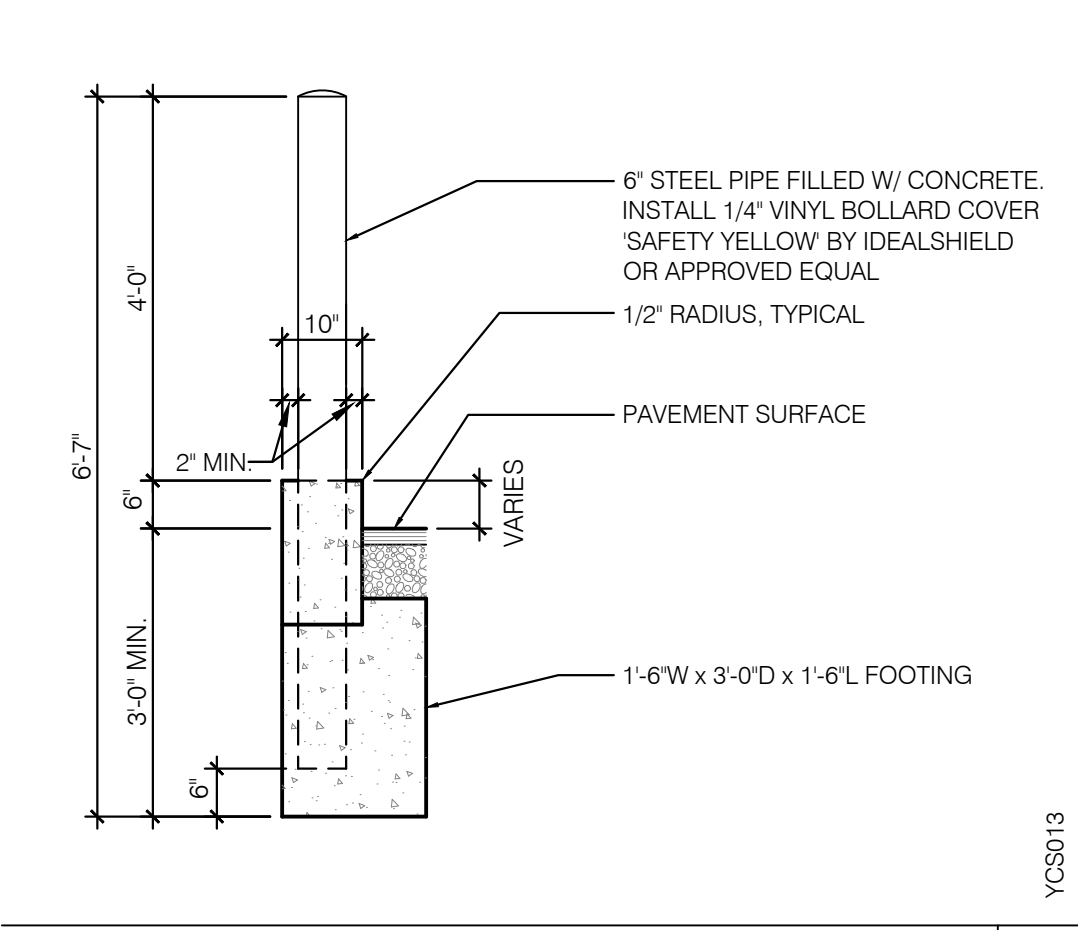
ADA PARKING SIGN N.T.S. **14**



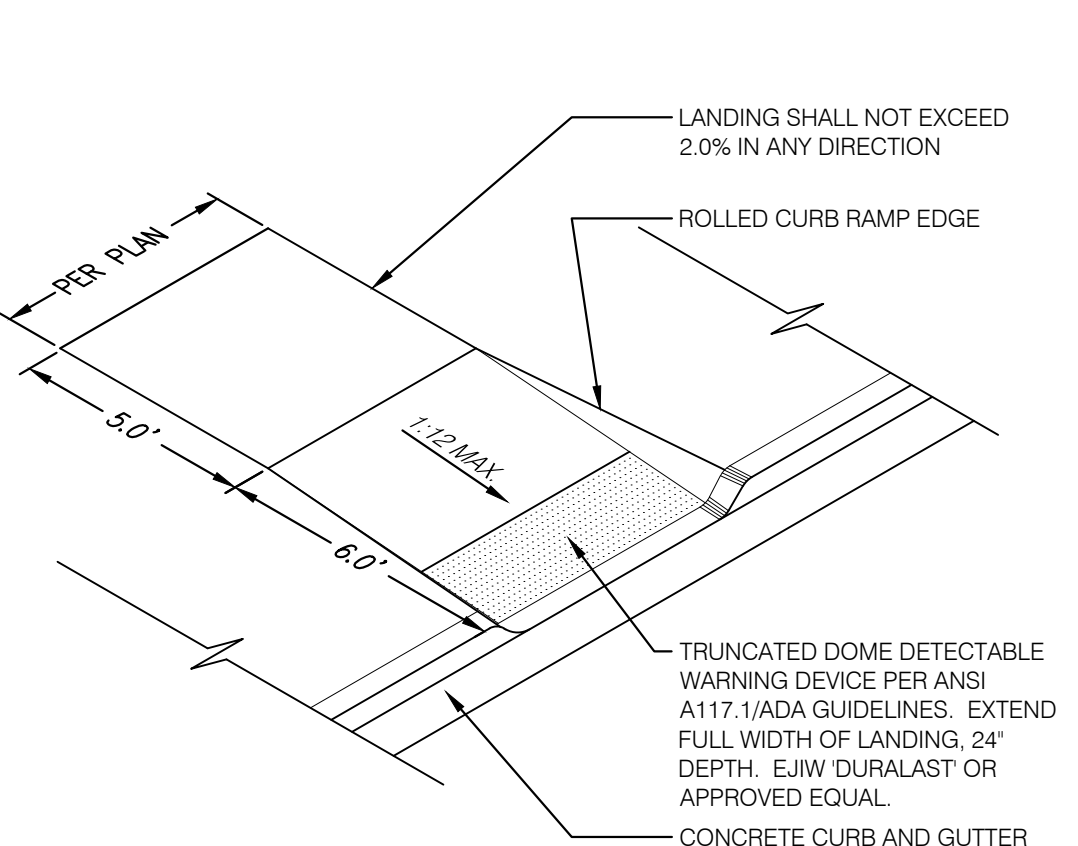
PLANTING DETAIL N.T.S. **15**



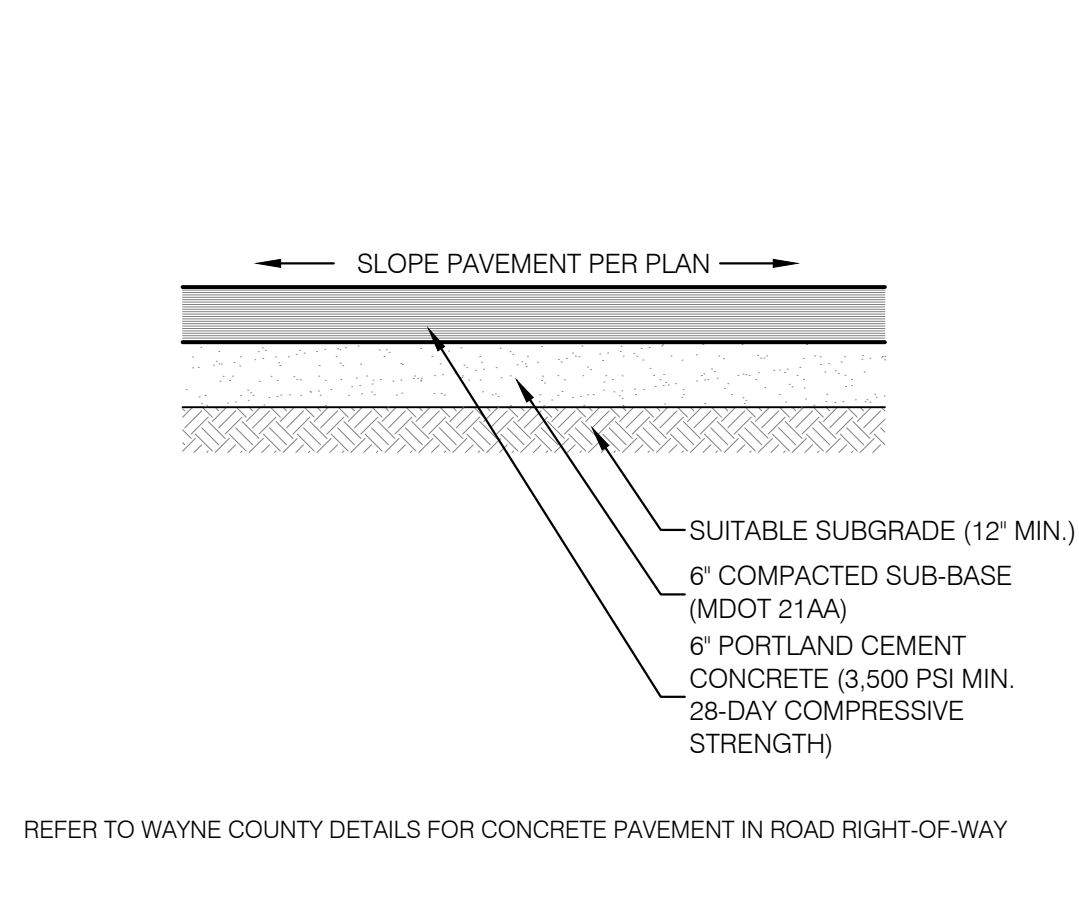
GUARD POST BOLLARD N.T.S. **9**



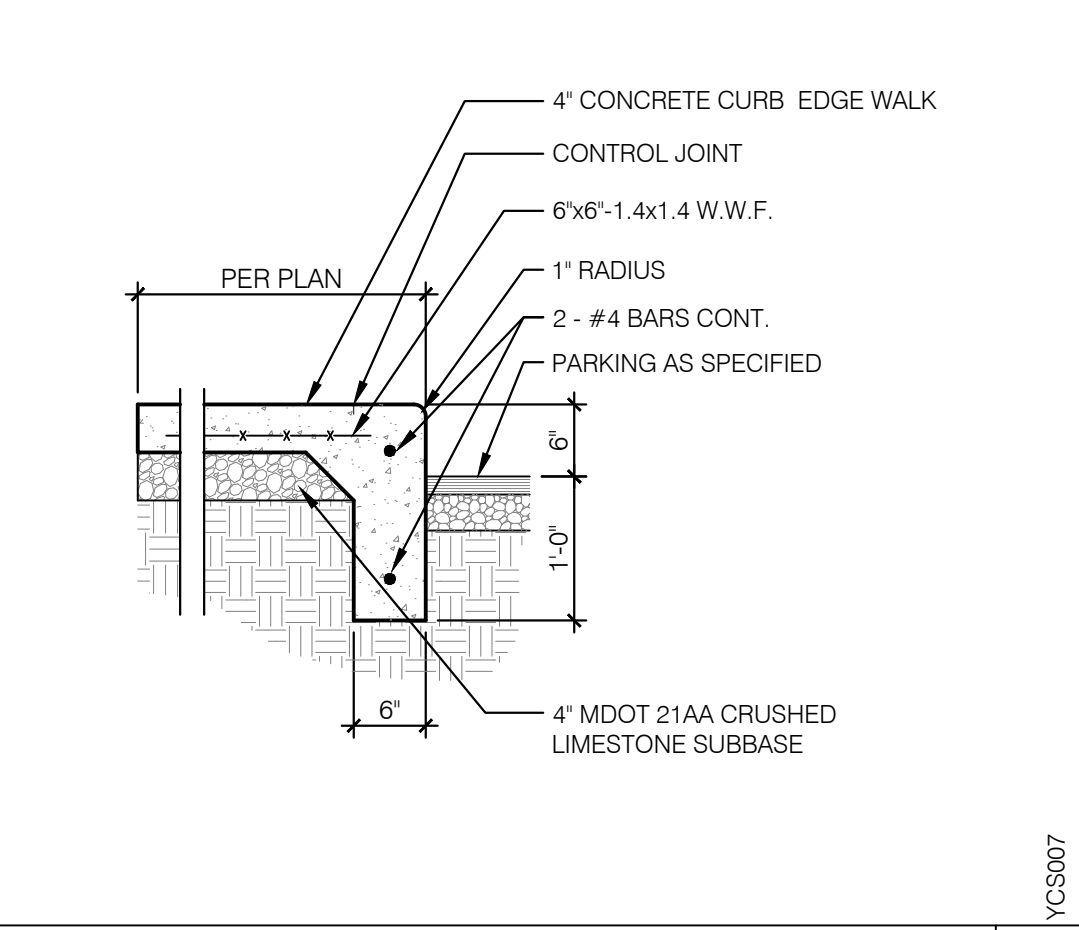
BOLLARD AT CURB N.T.S. **10**



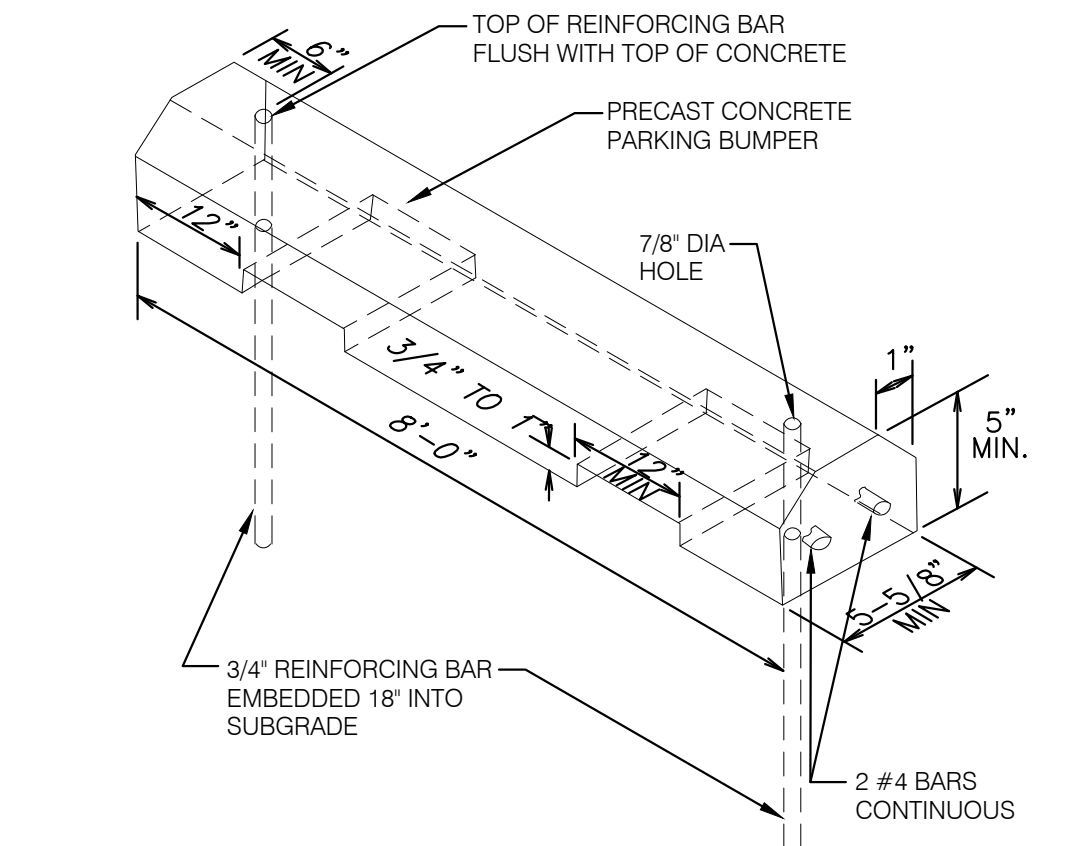
SIDEWALK RAMPS N.T.S. **12**



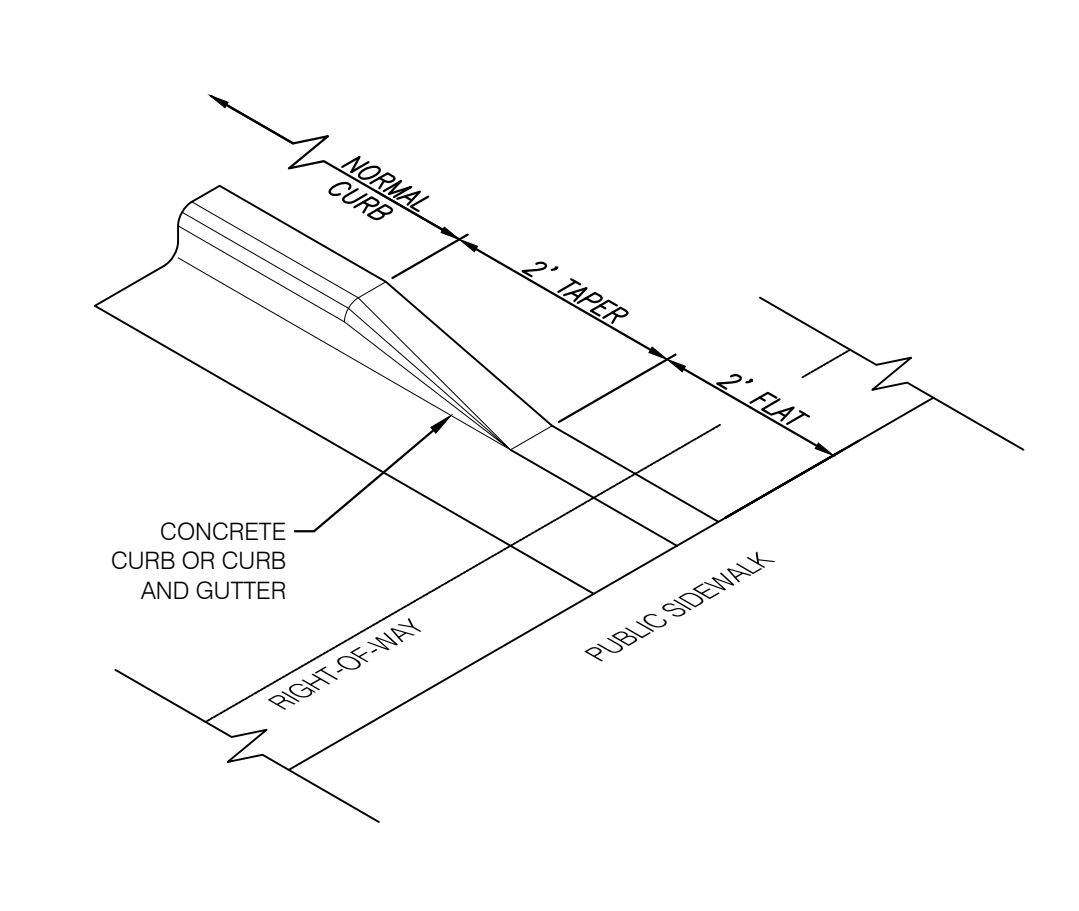
CONCRETE PAVEMENT N.T.S. **5**



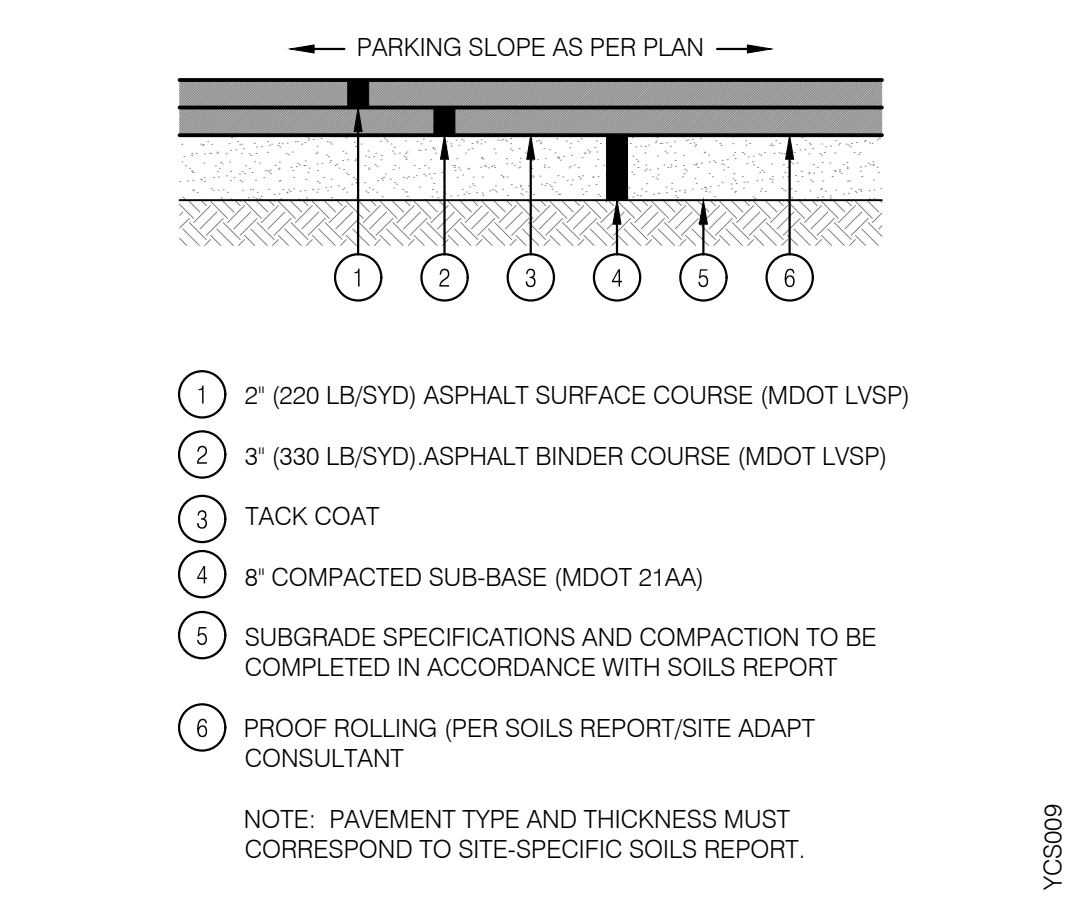
CURB EDGE SIDEWALK N.T.S. **6**



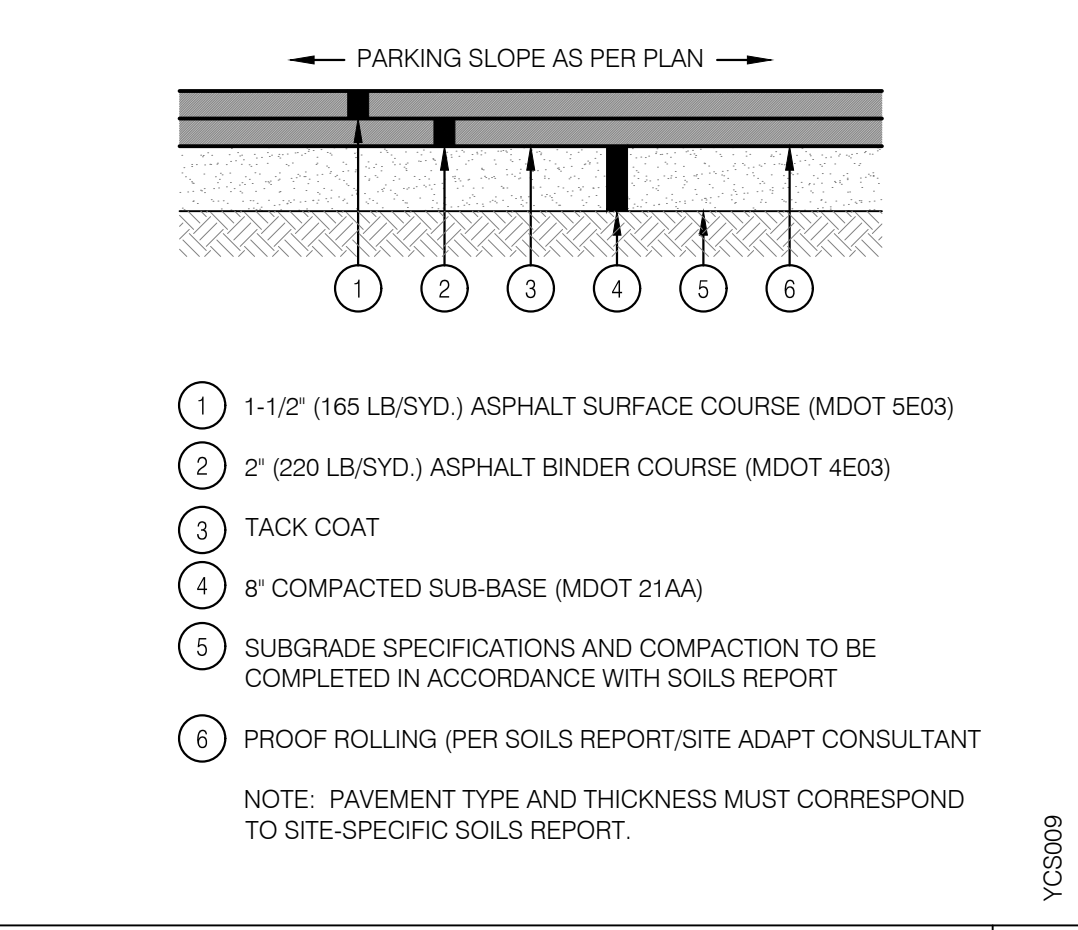
PRECAST CONC. PARKING BUMPER N.T.S. **7**



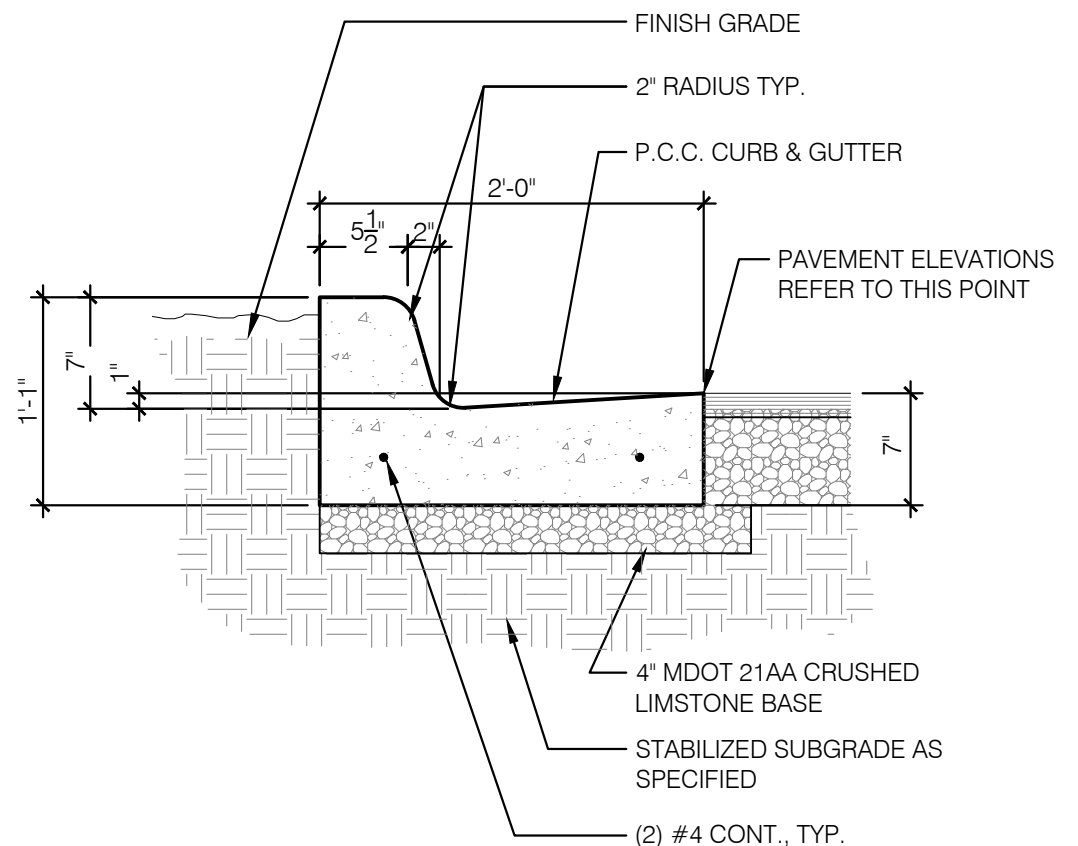
CURB NOSING N.T.S. **8**



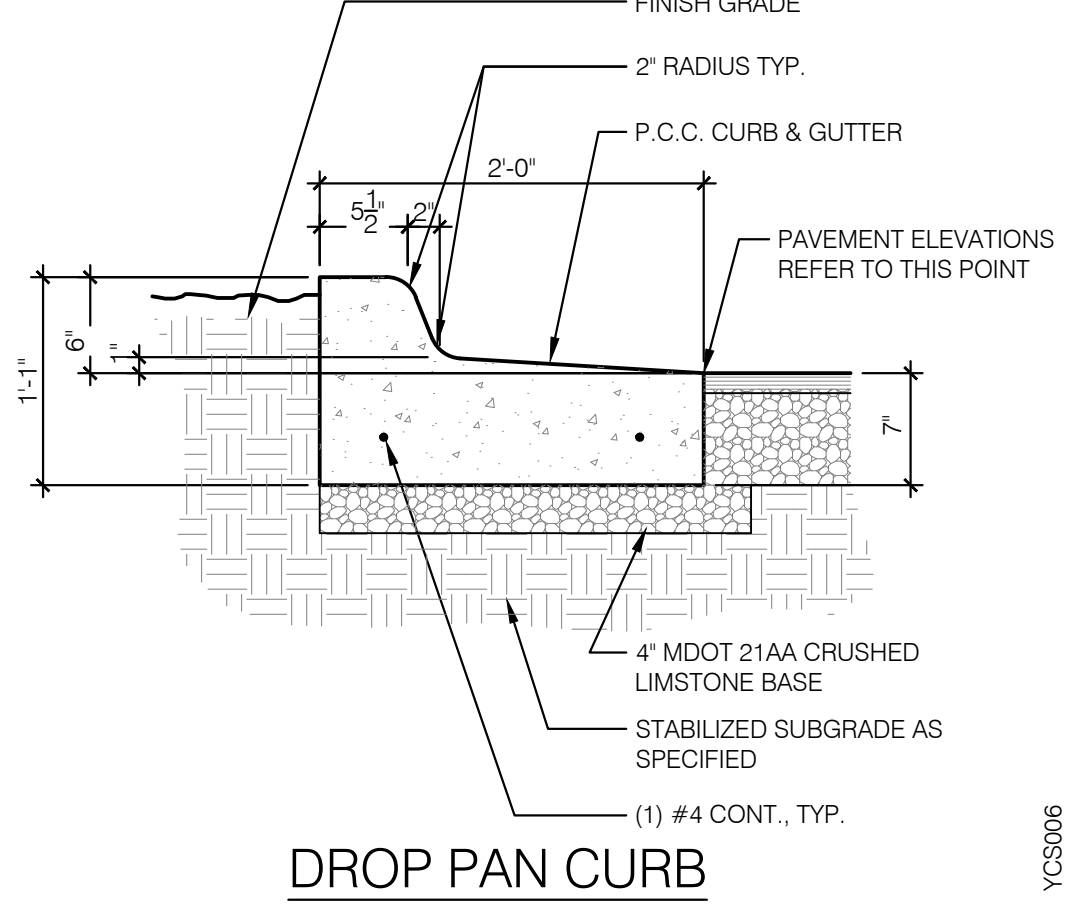
HEAVY-DUTY ASPHALT PAVEMENT N.T.S. **1**



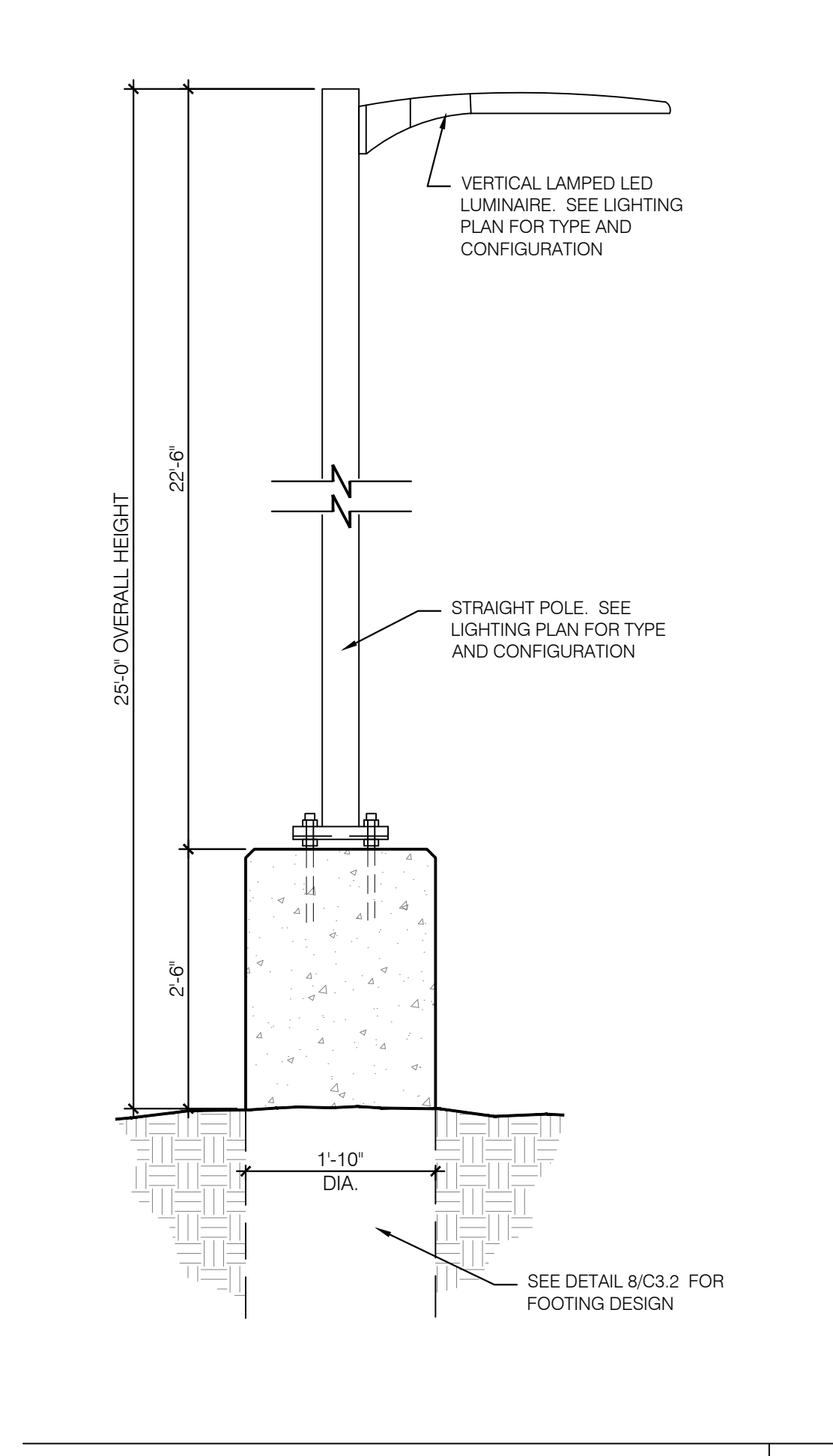
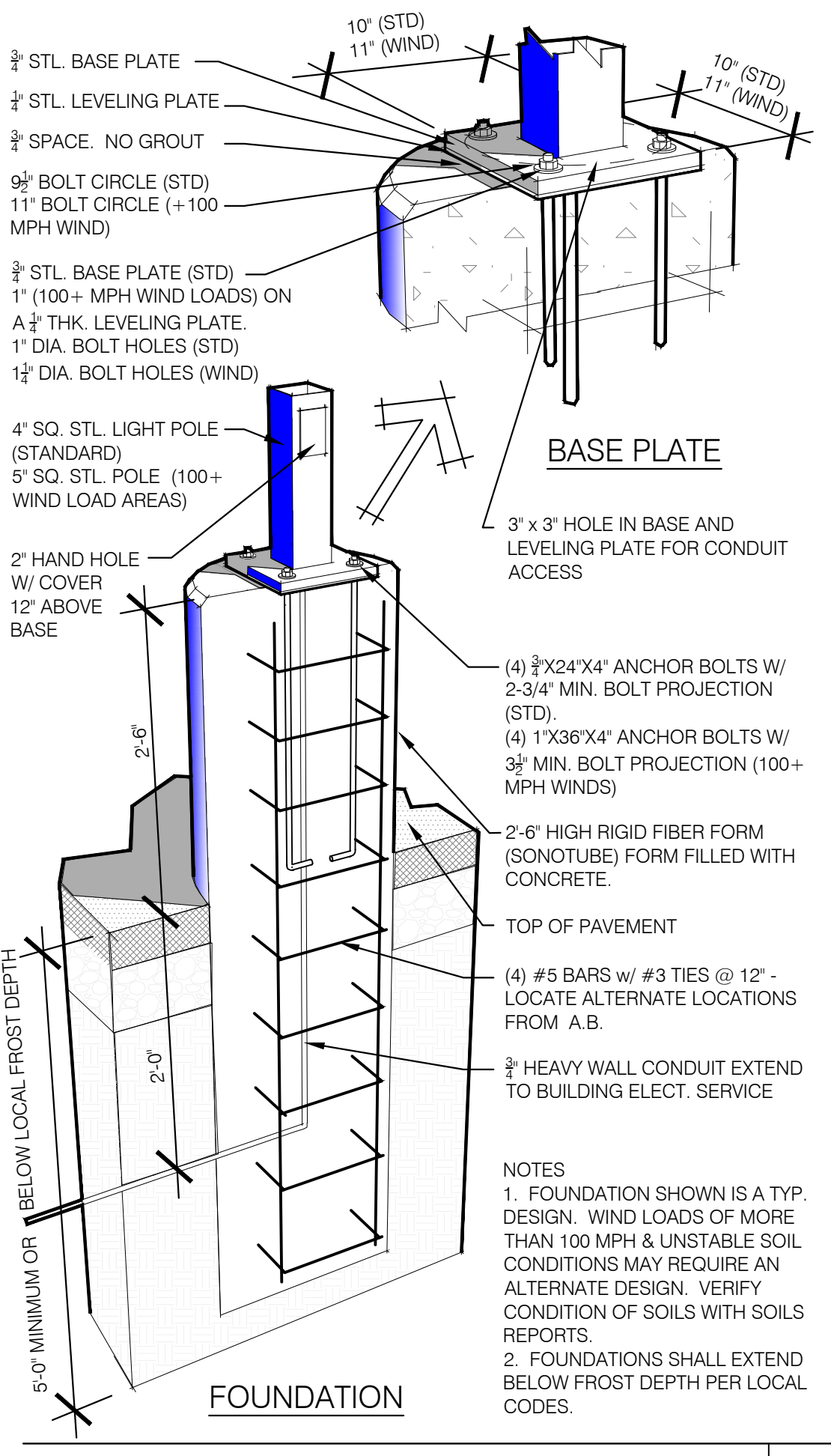
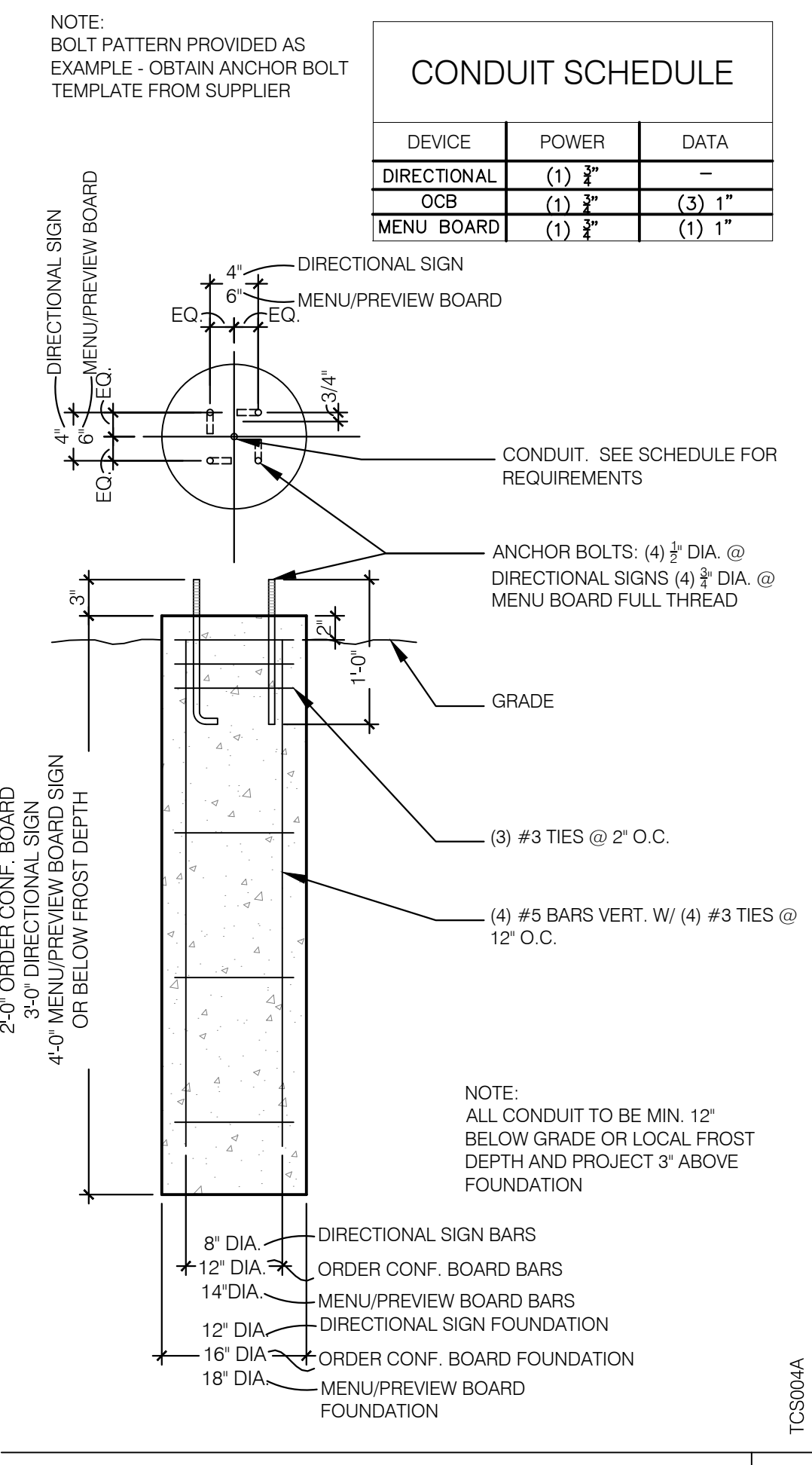
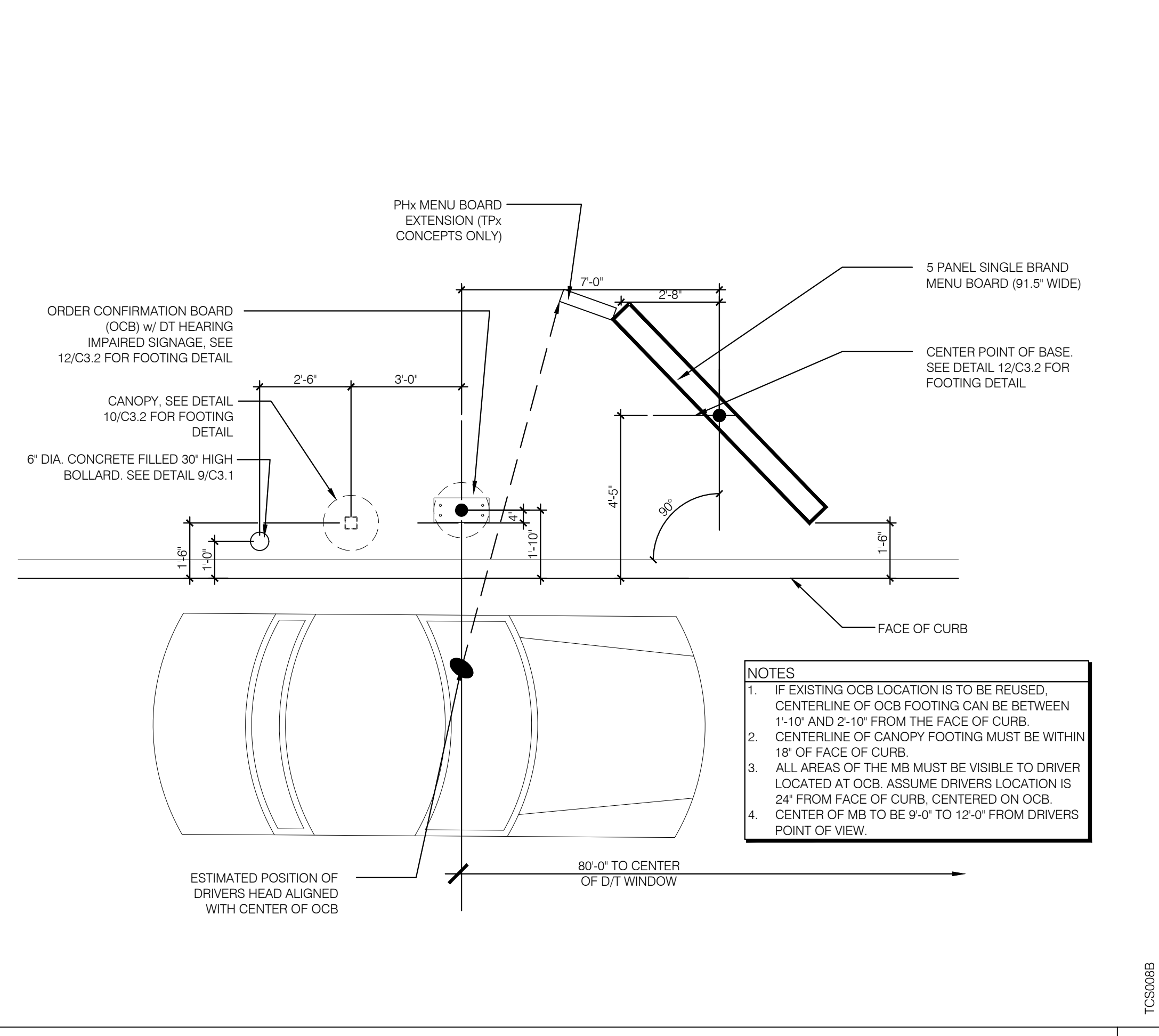
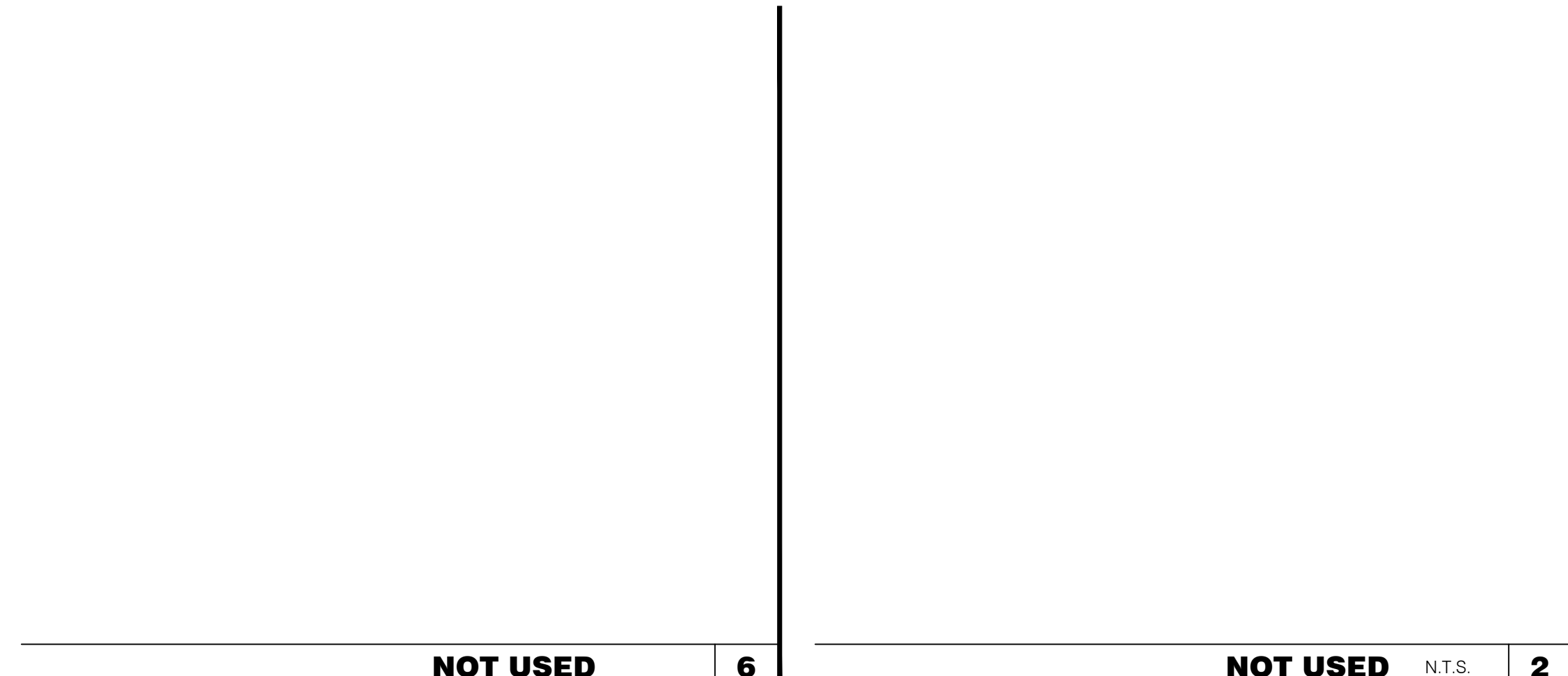
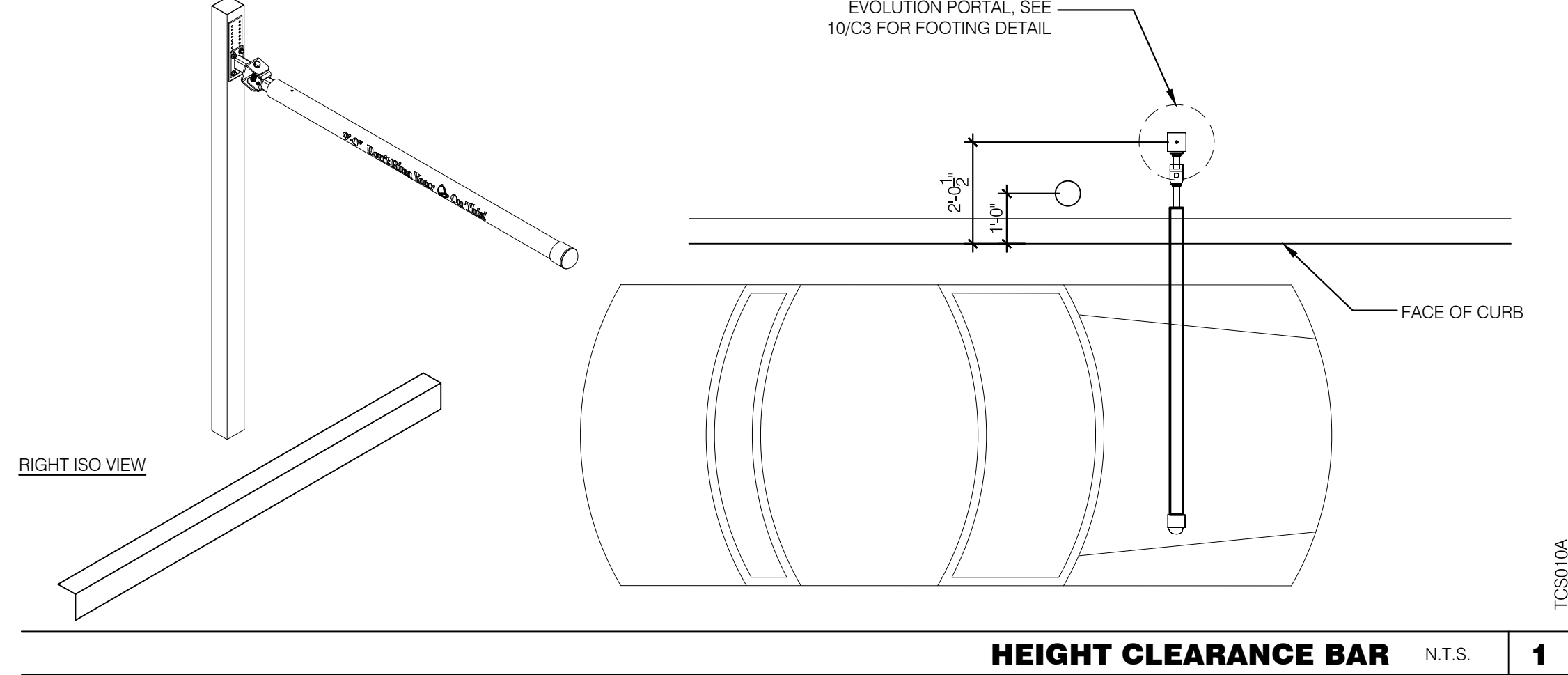
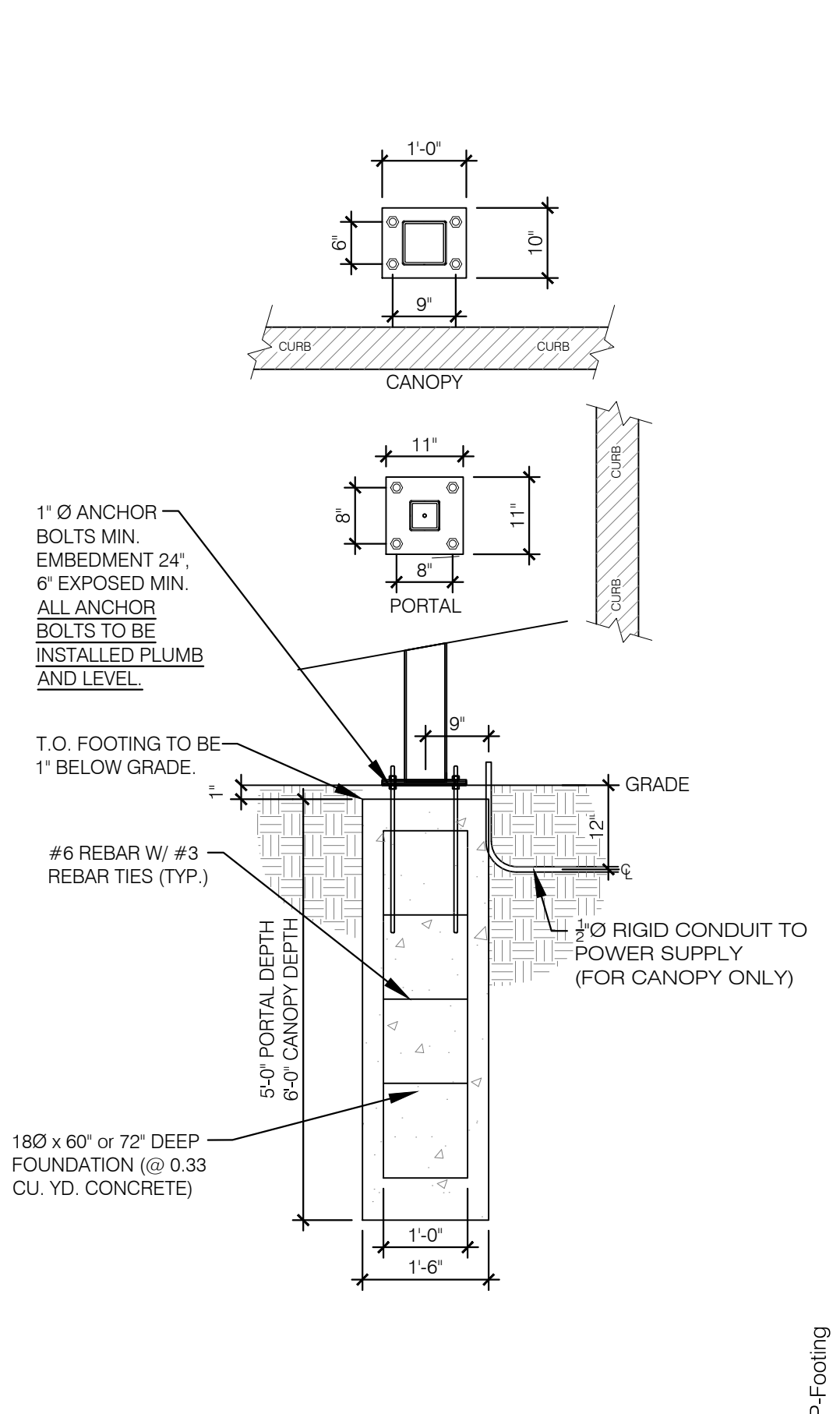
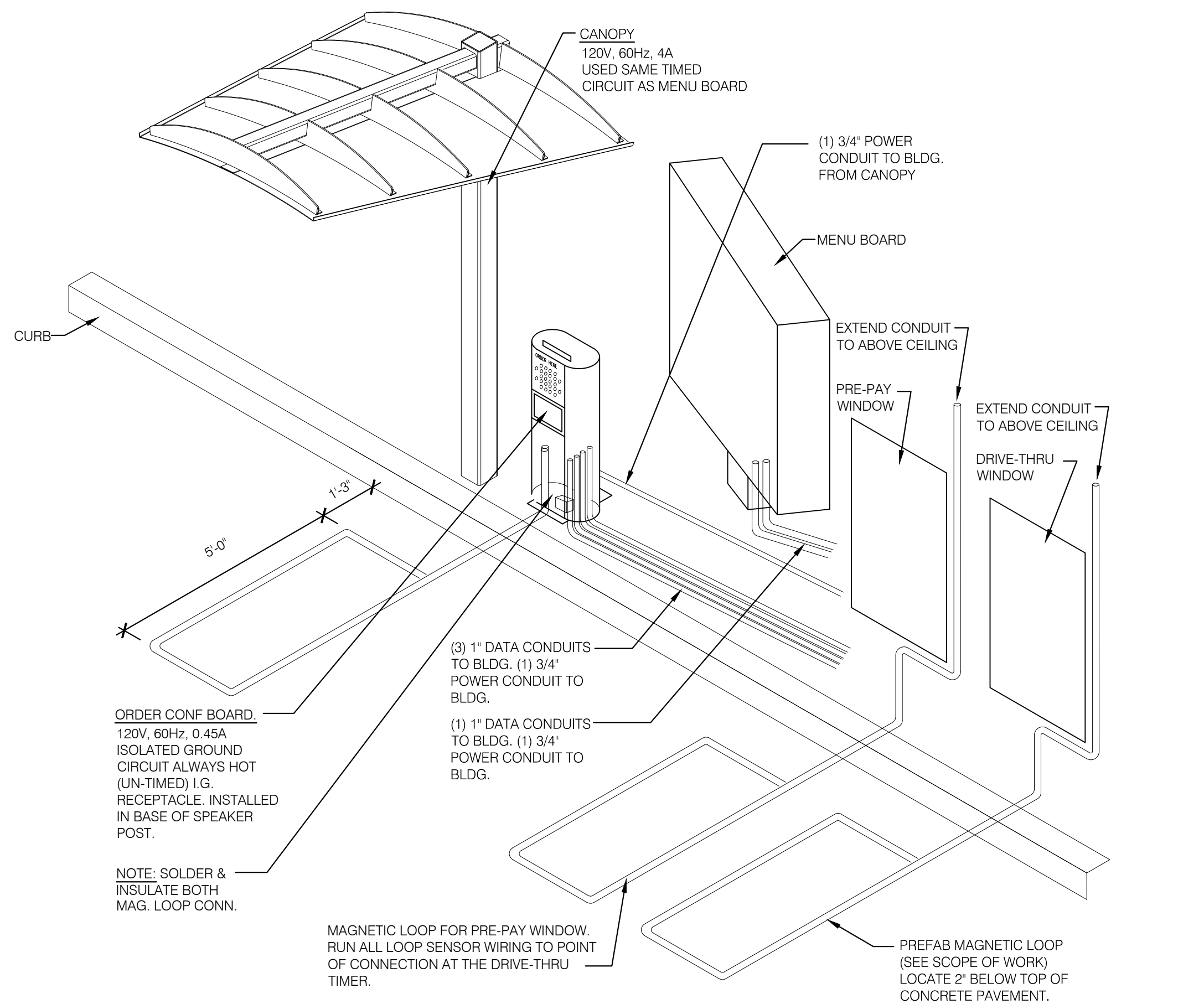
LIGHT-DUTY ASPHALT PAVEMENT N.T.S. **2**

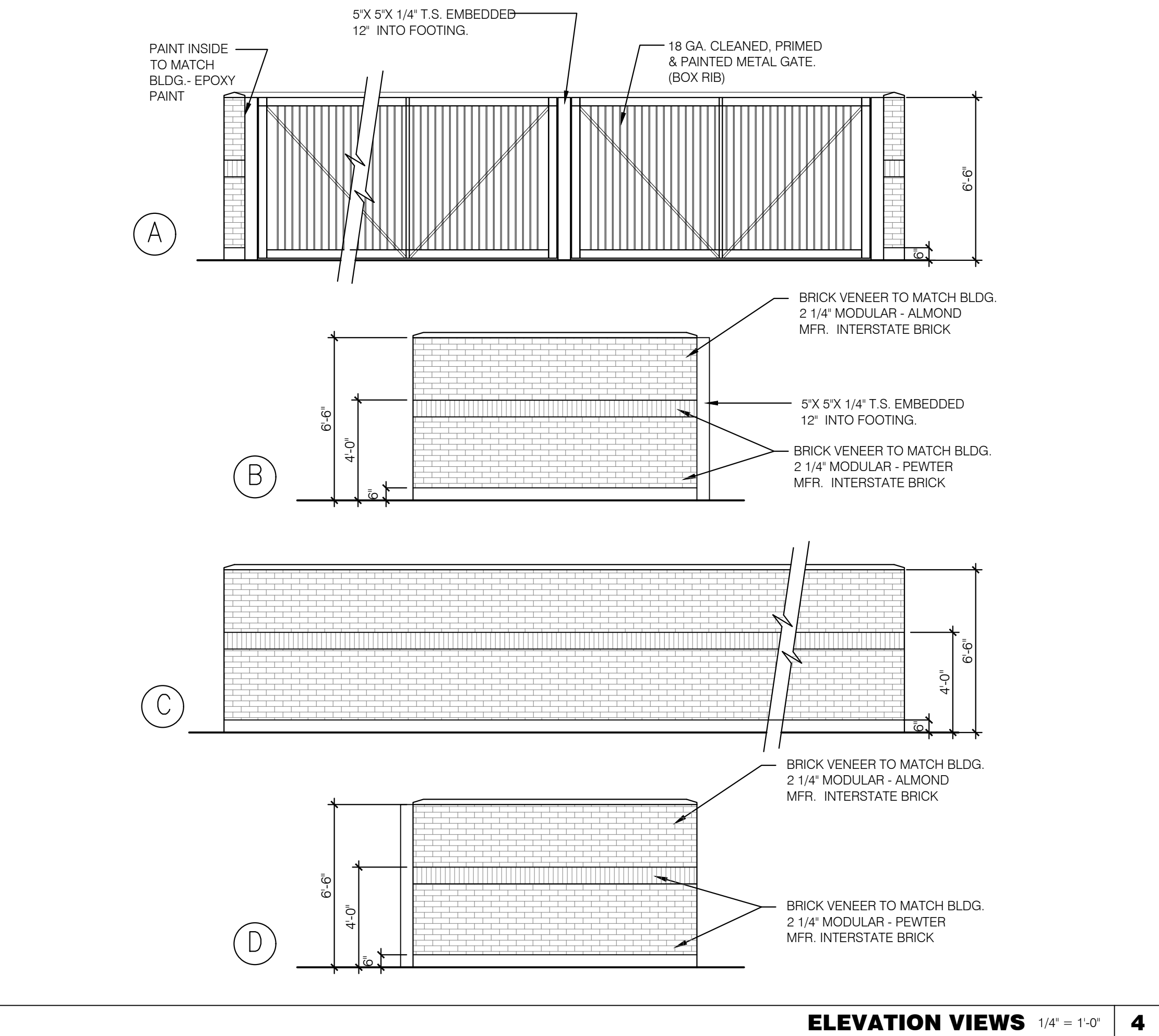
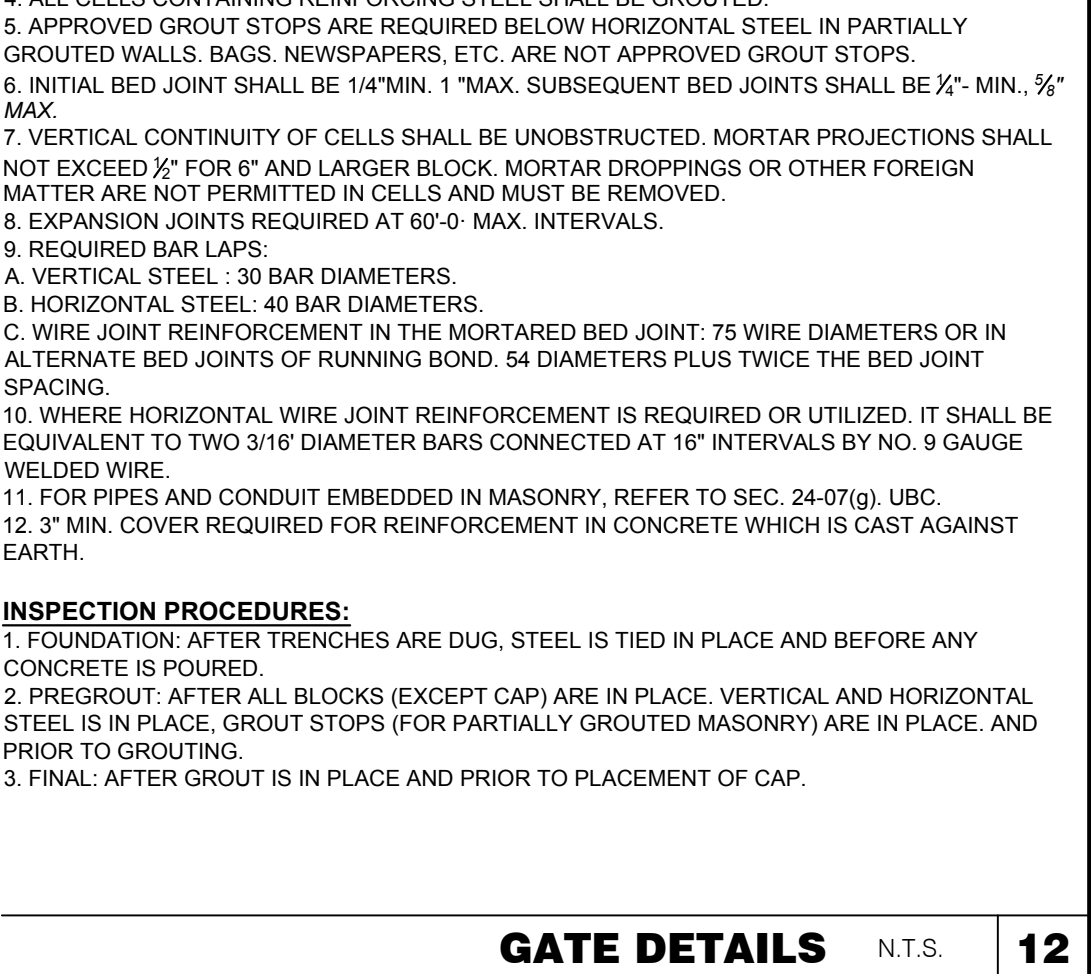
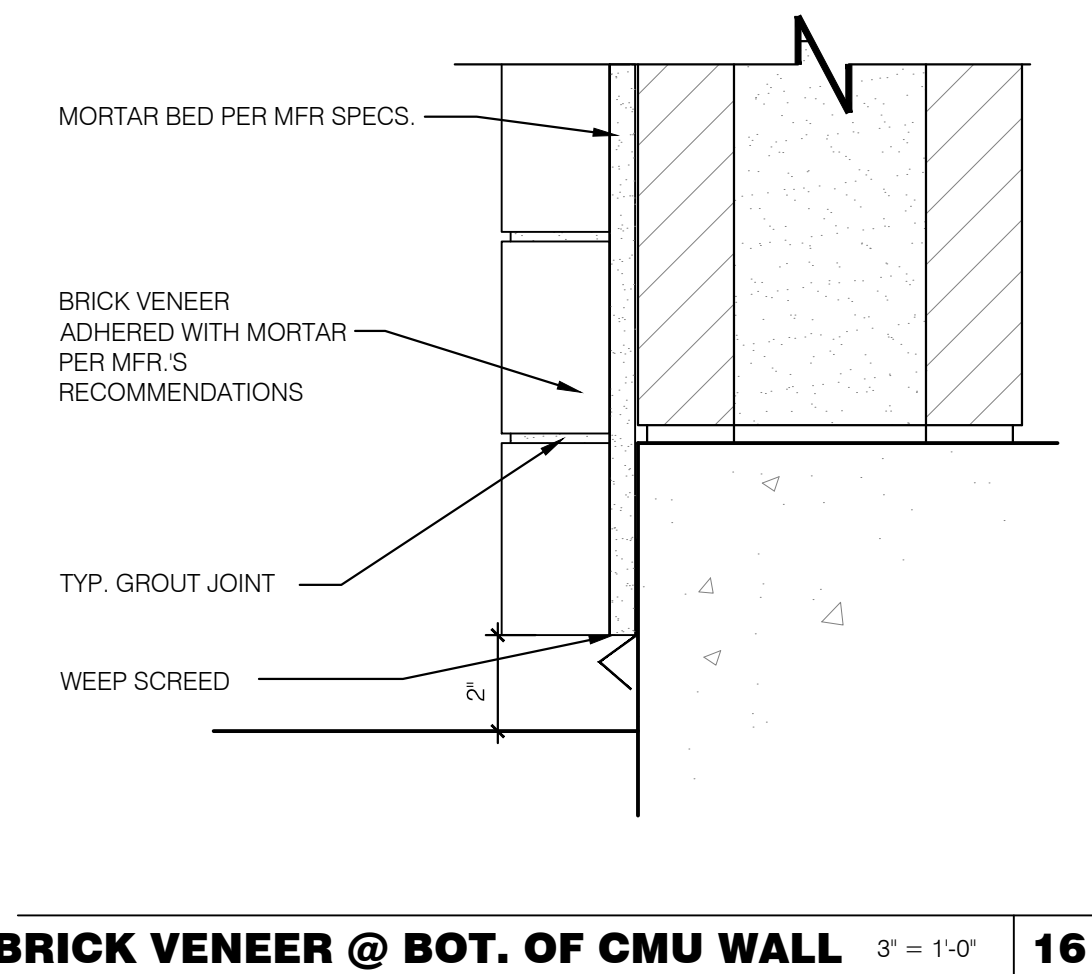
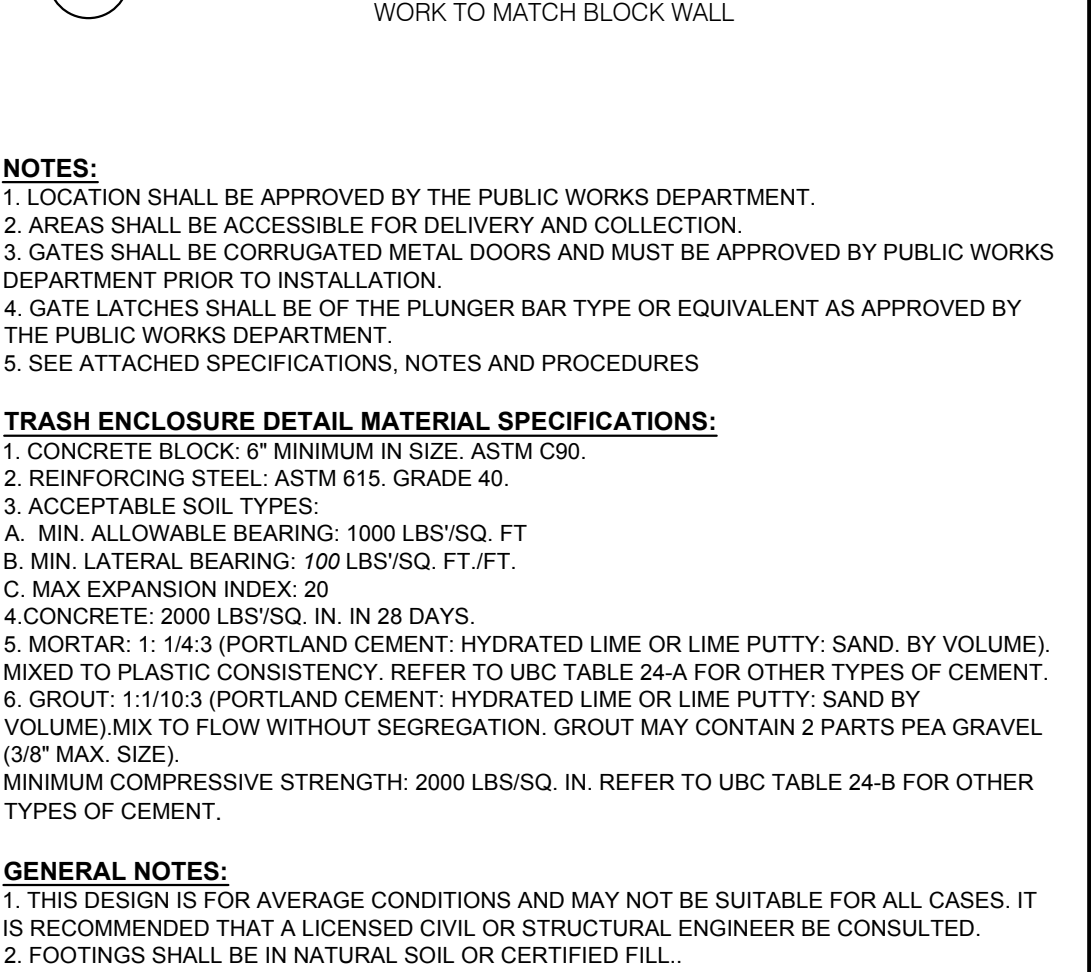
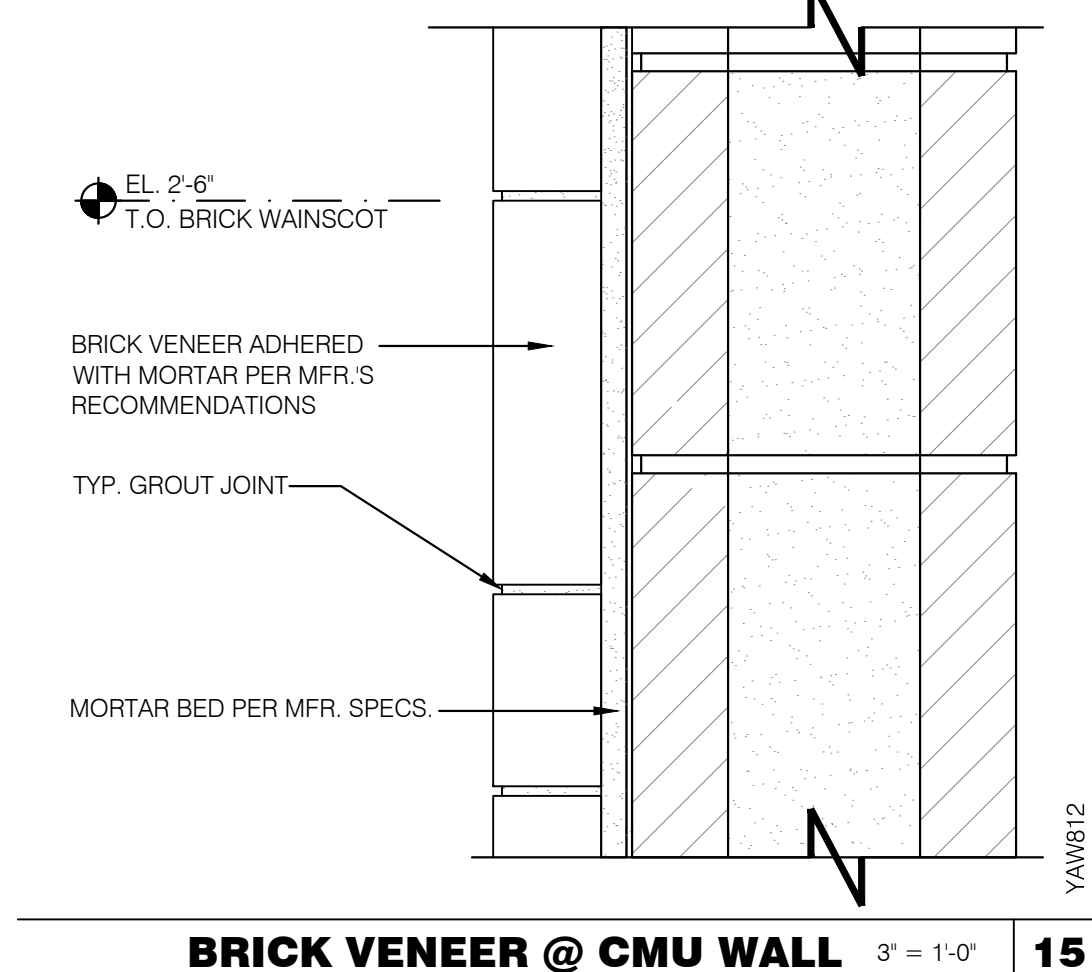
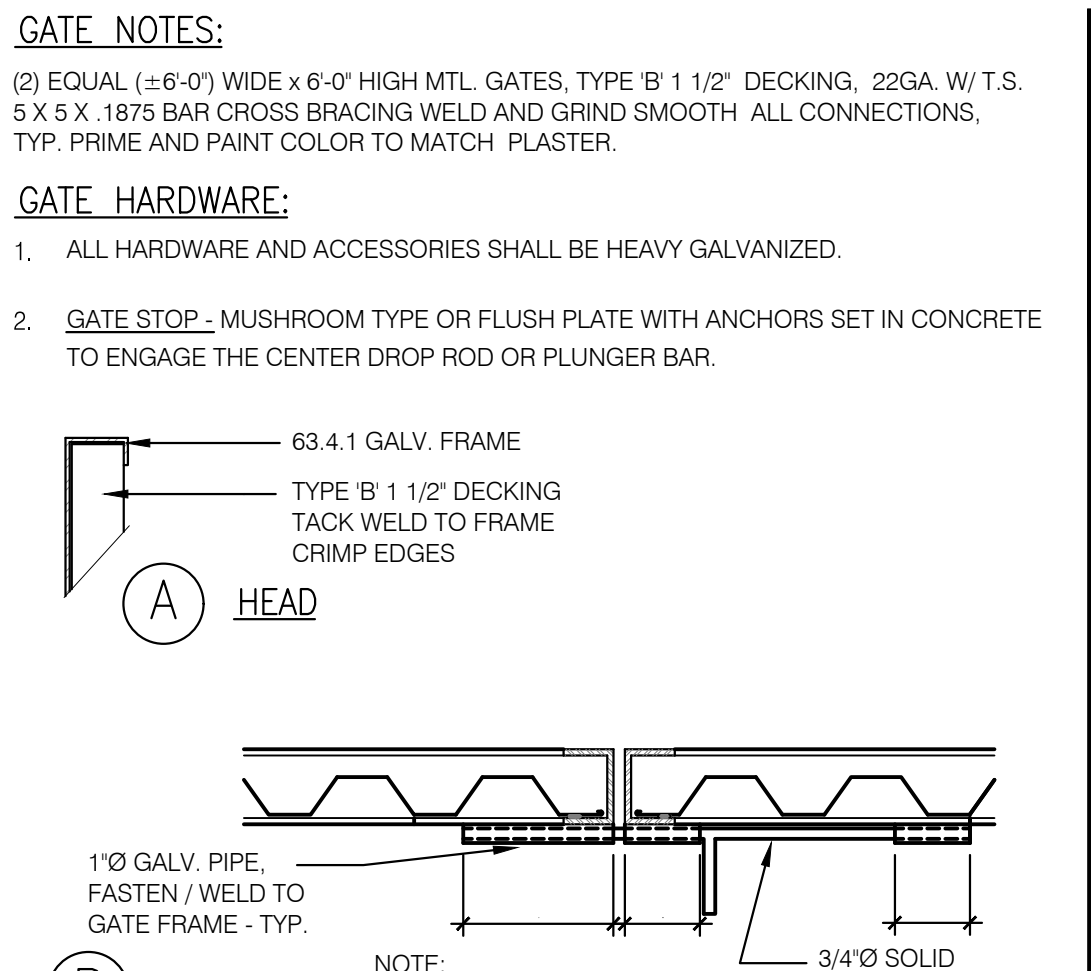
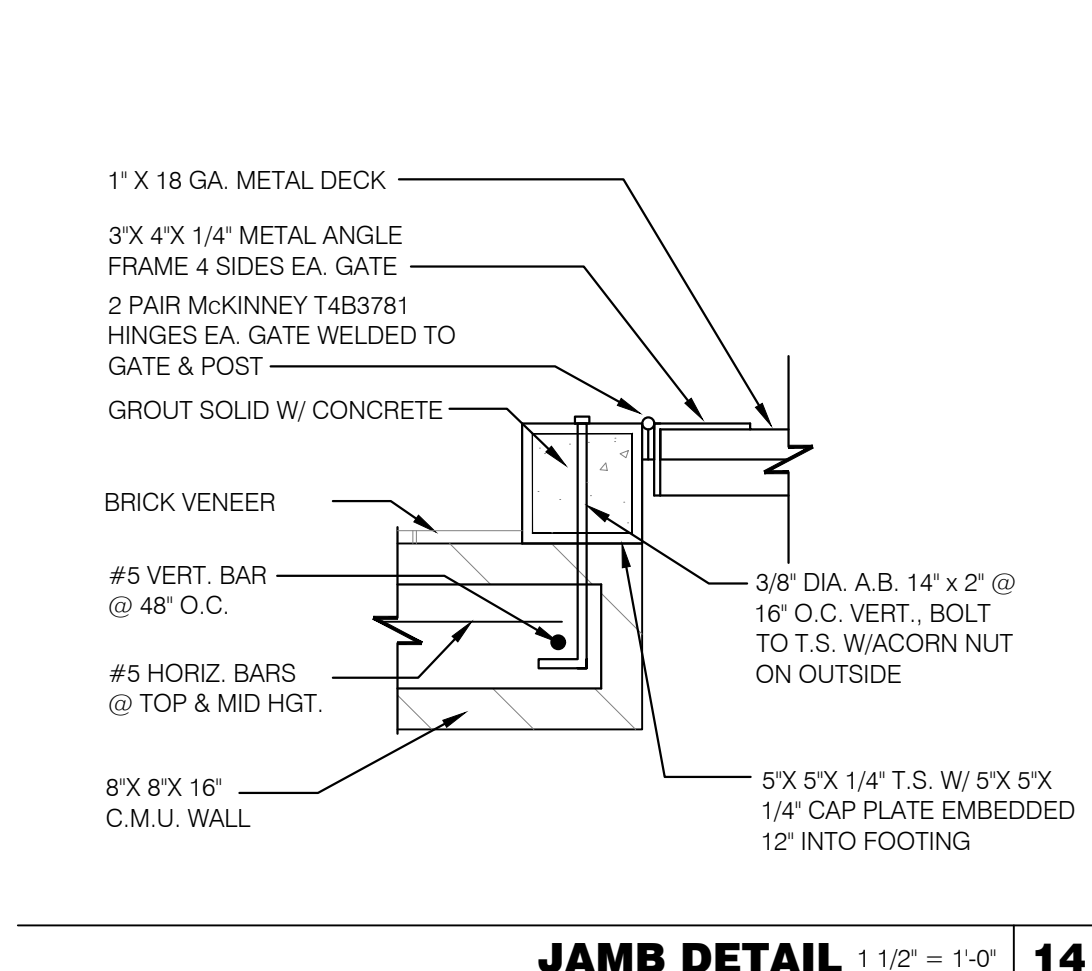
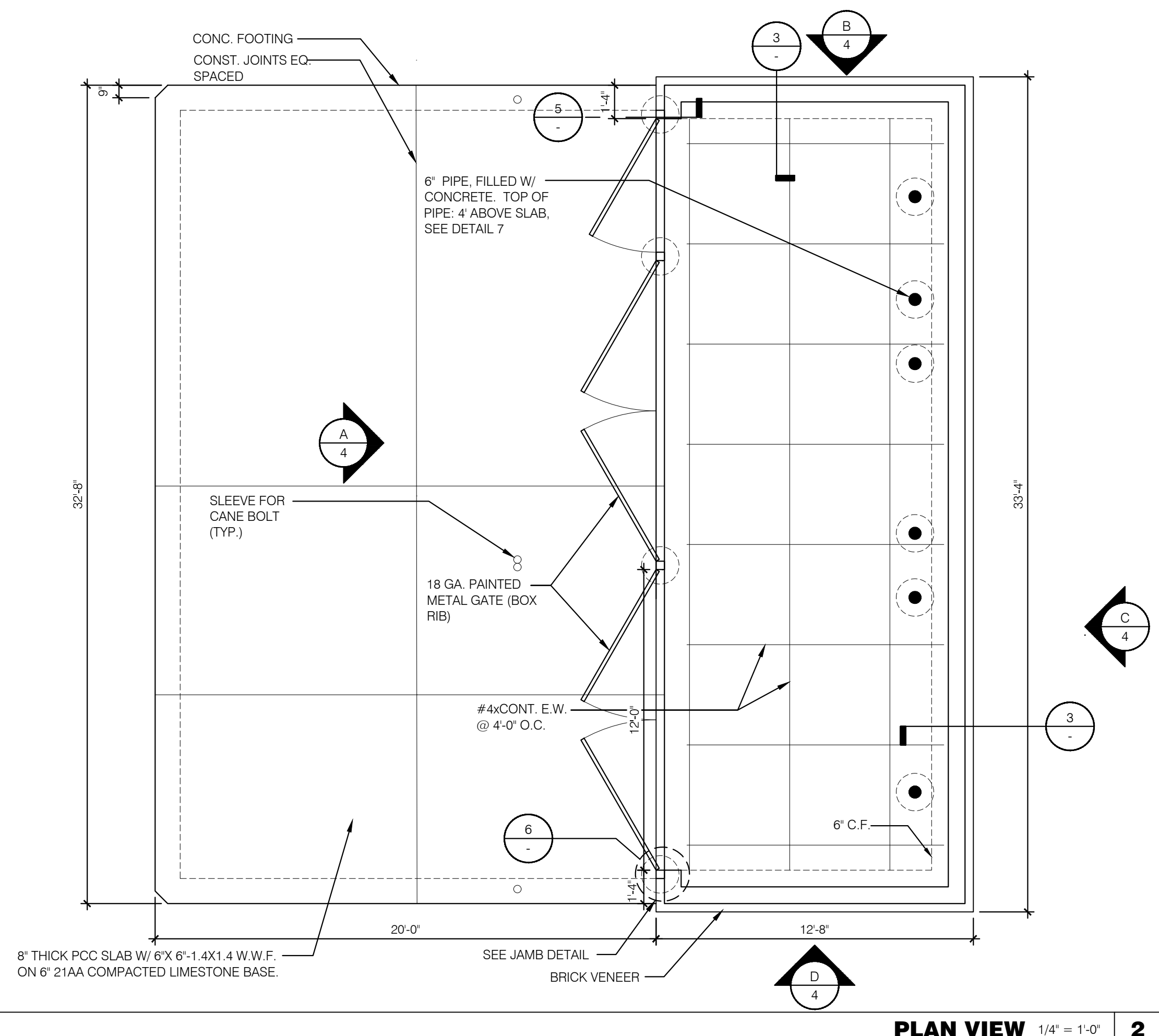
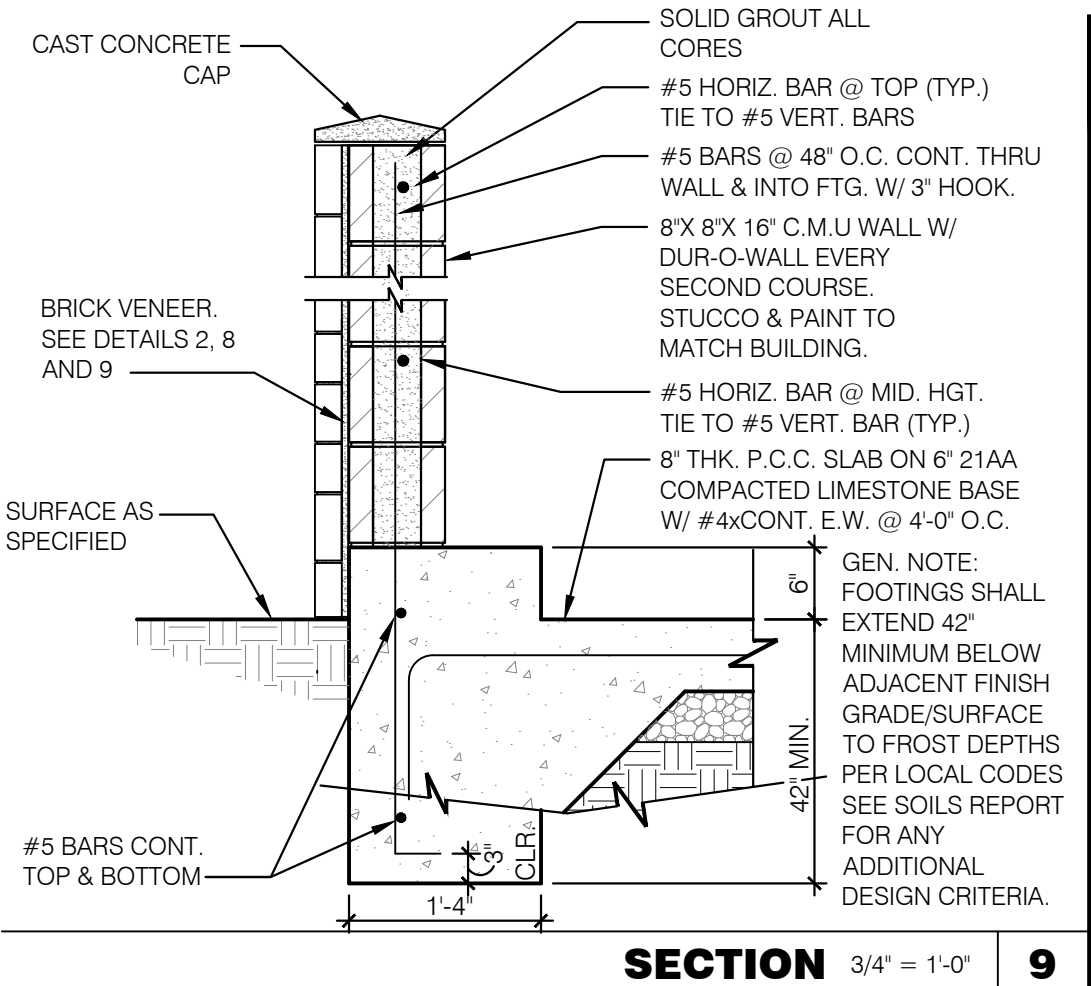
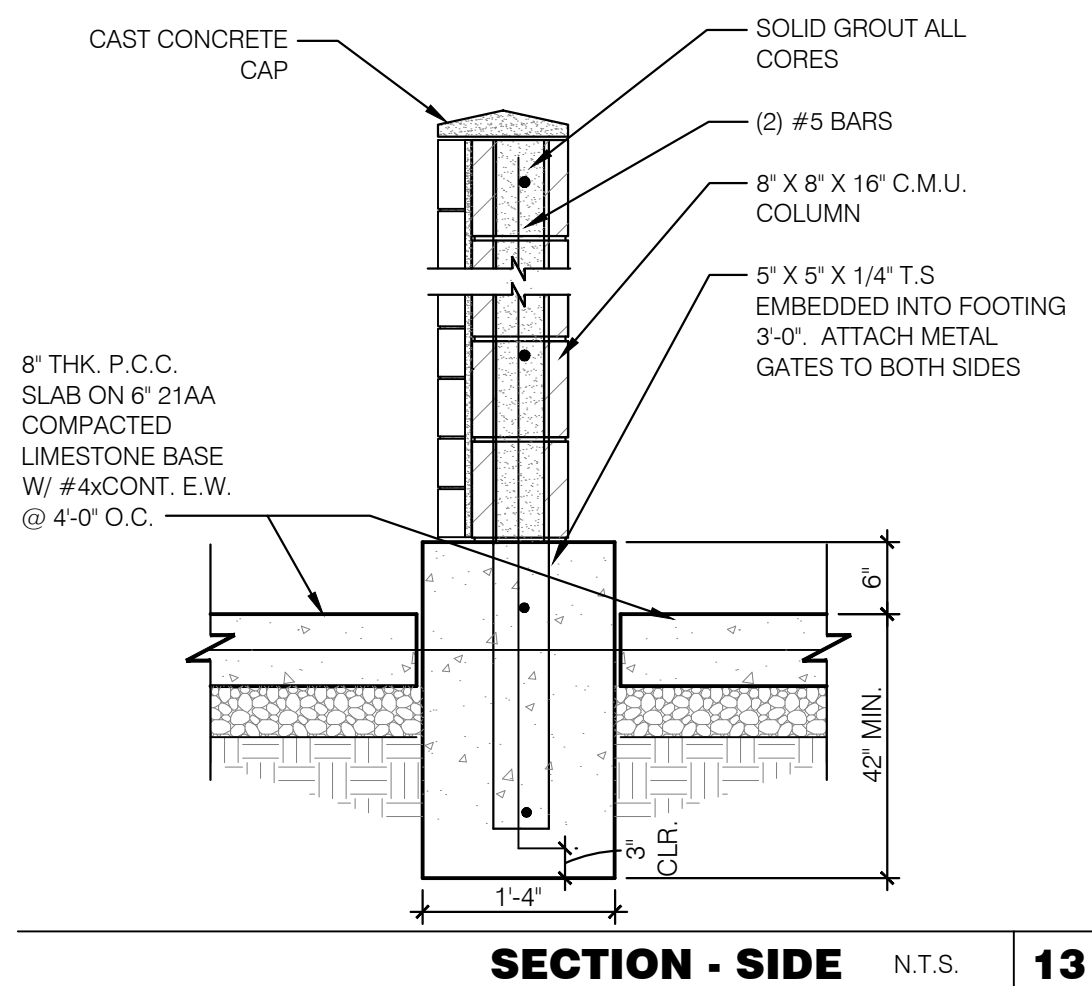


NORMAL PAN CURB



ON-SITE CONCRETE CURB N.T.S. **4**





NOT USED N.T.S. **17**

NOT USED N.T.S. **18**

NOT USED N.T.S. **19**

NOT USED N.T.S. **20**

△ ELEC. ROUTE/MH PER DTE 08.06.18
△ ADA PWMT TYPE 08.13.18
△
△
△
△
△
△
△
△

ISSUE DATE:	06.19.2018
BUILDING TYPE:	EXPLORER LITE
PLAN VERSION:	MEDIUM 40
SITE NUMBER:	312529
ENTITY NUMBER:	445209

TACO BELL
19578 NORTH LINE ROAD
SOUTHGATE, MI 48195



WAYNE COUNTY STANDARD DETAILS

C3.4

CURB RETURN JOINING EXISTING PAVEMENT

4 INCH CONCRETE SIDEWALK
Walk Width as called for on Plans
1" Expansion Joint for on Plans
2% Toward Street
4" Sand Base or as directed by the Wayne County Engineer.

THICKENED CONCRETE SIDEWALK
1" Transverse Expansion Joint
Drive Width
Plane of Weakness Joint
Typical Both Sides
4" Concrete Sidewalk (Typ.)
Thickness 8" for Commercial Drive
Thickness 6" for Residential Drive
6" 21AA Aggregate Base or as directed by the Wayne County Engineer.

FRONTAGE SIDEWALKS—EXISTING R.O.W.
Notes:
Sidewalk transverse slope may vary from 0% to 4% to meet site conditions. When transverse slope is less than 2% longitudinal drainage must be provided.
Sidewalk Ramps shall conform to the current ADA requirements. See MDOT R-28 series or as approved by the Wayne County Engineer.

APPROACH SIDEWALKS—NEW SUBDIVISIONS
Notes:
Sidewalk intersections shall be cast monolithically with joint lines placed as near to perpendicular as possible with sidewalks edge, to avoid narrow or pointed pieces of concrete.
Where permanent structure is located in sidewalks, place 1/2" expansion material around structure and adjust joint pattern to intersect structure as shown.

Work this Sheet with the General Notes on RS-1

REVISION DATE: 08/01/07	WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES ENGINEERING DIVISION/PERMIT OFFICE PERMIT STANDARDS	SCALE NOT TO SCALE
DIRECTOR OF ENGINEERING		D-6
DIVISION PERMIT ENGINEER	CONCRETE SIDEWALK	SHEET 1 OF 1

NOTE: THIS IS NOT A LEGAL ENGINEERING DOCUMENT BUT AN ELECTRONIC DUPLICATE. THE ORIGINAL SIGNED COPY FOR PUBLICATION IS KEPT ON FILE AT THE WAYNE COUNTY ENGINEERING OFFICES.

CURB RETURN JOINING EXISTING PAVEMENT

1" Expansion Joint
Saw Cut Line
Gutter Line
12" Expansion Joint
Curb Drop
Canc. Curb
Existing Curb
Proposed Drive Pavement
Limits of section A - A

* 4" for HMA Drive Pavement. No Expansion Joint Required.

Section "A - A"

Work this Sheet with the General Notes on RS-1.

REVISION DATE: 08/01/07	WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES ENGINEERING DIVISION/PERMIT OFFICE PERMIT STANDARDS	SCALE NOT TO SCALE
DIRECTOR OF ENGINEERING		D-6
DIVISION PERMIT ENGINEER	CONCRETE SIDEWALK	SHEET 2 OF 2

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CURB RETURN JOINING EXISTING PAVEMENT

16" MIN., 20" MAX. ONE WAY TRAFFIC
25" MIN., 40" MAX. TWO WAY TRAFFIC
OR AS SHOWN ON THE PLANS
10' R MINIMUM
20' R MINIMUM
BACK OF CURB
CURB DROP
GUTTER LINE
WIDTH AS SHOWN ON PLANS

* 4" FOR ASPHALT DRIVE PAVEMENT

SECTION A-A
NOT TO SCALE

NOTES:
CONSTRUCT THE DRIVE APPROACH WITH 8" NON-REINFORCED CONCRETE ON 6" OF 21AA AGGREGATE BASE COURSE COMPACTED IN PLACE (CIP) OR 6" HMA LEVELING ON 9" OF 21AA AGGREGATE BASE COURSE (CIP).
CURBS SHALL BE CONSTRUCTED WITH HEIGHT VARYING FROM 6" AT BACK OF CURB TO 0" HEIGHT AT FACE OF SIDEWALK OR RIGHT-OF-WAY LINE.
AT ALL CONCRETE DRIVES, PLACE A 1" EXPANSION JOINT AT BACK OF CURB AND 1/2" EXPANSION JOINT AT FACE OF SIDEWALK OR RIGHT-OF-WAY LINE. MAINTAIN NORMAL SIDEWALK GRADE ACROSS DRIVE, 2% SLOPE UP FROM FACE OF SIDEWALK.
INBOUND OR OUTBOUND RADIUS SHALL BE REDUCED TO 5' FOR ONE-WAY TRAFFIC DRIVE APPROACH.
DRIVE APPROACH SHALL NOT ENCRoACH ACROSS PROPERTY LINE EXTENDED WITHOUT WRITTEN APPROVAL FROM THE ADJOINING PROPERTY OWNER.

Work this Sheet with the General Notes on RS-1
AND D-6 SHEET 2-2.

REVISION DATE: 08/01/07	WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES ENGINEERING DIVISION/PERMIT OFFICE PERMIT STANDARDS	SCALE NOT TO SCALE
DIRECTOR OF ENGINEERING		D-6
DIVISION PERMIT ENGINEER	COMMERCIAL DRIVE APPROACH	SHEET 1 OF 2

CONCRETE CURB CAP

6 inch or as directed by the Engineer to match Existing Curb
Proposed Surface
Existing Pavement
Top of Milled Surface as shown on Plans
1" Minimum Removal Below Existing Surface
7 1/2" R
1" Lip
Existing Pavement
T (Conc. Pav't)
1/2 T
7" Min.
12"

minimum length of Concrete Cap shall be 5'

No. 4 Longitudinal Bar
Bond to the existing curb with Cement Slurry or approved equal.

Concrete Curb Cap will be done after milling and prior to the replacement of HMA resurfacing, minimum length of Concrete Curb Cap shall be 5 feet.

2 - No. 4 Longitudinal Bars
1" Joint Filler
Existing Sidewalk
No. 4 Bar-12" long

Note:
Remove existing curb to a minimum of 1 inch below existing pavement surface. If an existing longitudinal sidewalk joint is more than 3'-6" from the curb face, the sidewalk shall be sawed for the Integral Concrete Curb Cap & Walk section. If an existing longitudinal sidewalk joint is closer than 3'-6" from the curb face, the sidewalk shall be removed and replaced outside the Integral Concrete Curb Cap & Walk section. Sidewalk removal and replacement shall be in accordance with the Specifications.
Integral Concrete Curb Cap & Walk (Patching) is curb and walk less than 25 feet in continuous length. Minimum length of patches will be 5 feet.

Work this Sheet with the General Notes on RS-1

REVISION DATE: 07/02/2008	WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES ENGINEERING DIVISION/PERMIT OFFICE PERMIT STANDARDS	SCALE NOT TO SCALE
DIRECTOR OF ENGINEERING		D-7
DIVISION PERMIT ENGINEER	CONCRETE CURB CAP	SHEET 3 OF 3

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CURB DETAIL "A" (CURB CUT)

Horizontal Saw Cut Line
1" Lip
Existing Pavement

CURB DROP SHALL BE HORIZONTAL SAW CUT AT 1" ABOVE GUTTER LINE. IF THE CURB HAS NOT BEEN HORIZONTALLY CUT SATISFACTORILY, THE CURB CUT WILL HAVE TO BE REMOVED BY SAW CUTTING VERTICALLY AND REPLACED AS PER CURB DETAIL "B".

CURB DETAIL "B" (CURB REPLACEMENT W/ DROP)

1" Lip
Existing Pavement
1/4" R
T (Conc. Pav't)
1/2 T
7" Min.
12"

* IF LANE TIES CAN NOT BE UTILIZED, DEEPEN MONOLITHIC CURB AS SHOWN.

5 LANE TIES @ 41" on Center

CURB DETAIL "C" (CURB REPLACEMENT)

1/4" R
5 1/2" Batter
Existing Pavement
T (Con. Pav't)
1/2 T
7" Min.
12"

* IF LANE TIES CAN NOT BE UTILIZED, DEEPEN MONOLITHIC CURB AS SHOWN.

5 LANE TIES @ 41" on Center

Work this Sheet with the General Notes on RS-1.

REVISION DATE: 08/01/07	WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES ENGINEERING DIVISION/PERMIT OFFICE PERMIT STANDARDS	SCALE NOT TO SCALE
DIRECTOR OF ENGINEERING		D-7
DIVISION PERMIT ENGINEER	CURB DETAIL A, B, C	SHEET 1 OF 3

CONCRETE CURB CAP

6 inch or as directed by the Engineer to match Existing Curb
Proposed Surface
Existing Pavement
Top of Milled Surface as shown on Plans

Remove Existing Curb 1 inch Minimum below Existing Pavement Surface or 1 inch Min. below top of Milled Surface when Milling is called for on Plan

minimum length of Concrete Cap shall be 5'

No. 4 Longitudinal Bar
Bond to the existing curb with Cement Slurry or approved equal.

Concrete Curb Cap will be done after milling and prior to the replacement of HMA resurfacing, minimum length of Concrete Curb Cap shall be 5 feet.

2 - No. 4 Longitudinal Bars
1" Joint Filler
Existing Sidewalk
No. 4 Bar-12" long

Note:
Remove existing curb to a minimum of 1 inch below existing pavement surface. If an existing longitudinal sidewalk joint is more than 3'-6" from the curb face, the sidewalk shall be sawed for the Integral Concrete Curb Cap & Walk section. If an existing longitudinal sidewalk joint is closer than 3'-6" from the curb face, the sidewalk shall be removed and replaced outside the Integral Concrete Curb Cap & Walk section. Sidewalk removal and replacement shall be in accordance with the Specifications.
Integral Concrete Curb Cap & Walk (Patching) is curb and walk less than 25 feet in continuous length. Minimum length of patches will be 5 feet.

Work this Sheet with the General Notes on RS-1

REVISION DATE: 07/02/2008	WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES ENGINEERING DIVISION/PERMIT OFFICE PERMIT STANDARDS	SCALE NOT TO SCALE
DIRECTOR OF ENGINEERING		D-7
DIVISION PERMIT ENGINEER	CONCRETE CURB CAP	SHEET 2 OF 3

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- All materials and workmanship shall be in accordance with the Wayne County Specifications which are defined as the 2003 Michigan Department of Transportation (MDOT) Standard Specifications for Construction as modified by Wayne County Special Provisions.
- The Contractor may construct manholes, catch basins and inlets, as detailed, with precast reinforced concrete units provided the following conditions are satisfied:
 - All precast sections shall be made in accordance with ASTM C-478 except that:
 - The minimum wall thickness shall be 5 inches.
 - The thickness of base and top slabs shall be as detailed on the Standard Plans.
 - The maximum diameter of sewer outlet in any precast unit shall be 18 inches, except for inlets which shall have a maximum outlet diameter of 12 inches.
 - No openings shall be made in precast units which would leave less than 24 inches of total undisturbed precast manhole wall or would remove more than 30% of the circumference along any horizontal plane. A minimum of 6 inches of undisturbed manhole is required between any two openings. Openings may be constructed by casting, removal of green concrete, or by drilling the openings in cured concrete.
 - Openings for sewer pipe shall be cut or precast with a diameter 3 inches larger than the outside diameter of the pipe. The opening around the outside of the pipe shall be closed using brick masonry.
 - Structures for sewers larger than 18 inches or those not meeting the opening requirements shall be built of block or brick to a minimum of 8 inches above the top of sewer, with precast units being used above this point. Where the precast units rest on the block or brick, the groove in the precast unit will be filled with mortar.

REVISION DATE: 08/01/07	WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES ENGINEERING DIVISION/PERMIT OFFICE PERMIT STANDARDS	SCALE NOT TO SCALE
DIRECTOR OF ENGINEERING	GENERAL NOTES	S-1
DIVISION PERMIT ENGINEER		SHEET 1 OF 2

NOTE: THIS IS NOT A LEGAL ENGINEERING DOCUMENT BUT AN ELECTRONIC DUPLICATE. THE ORIGINAL SIGNED COPY FOR PUBLICATION IS KEPT ON FILE AT THE WAYNE COUNTY ENGINEERING OFFICES.

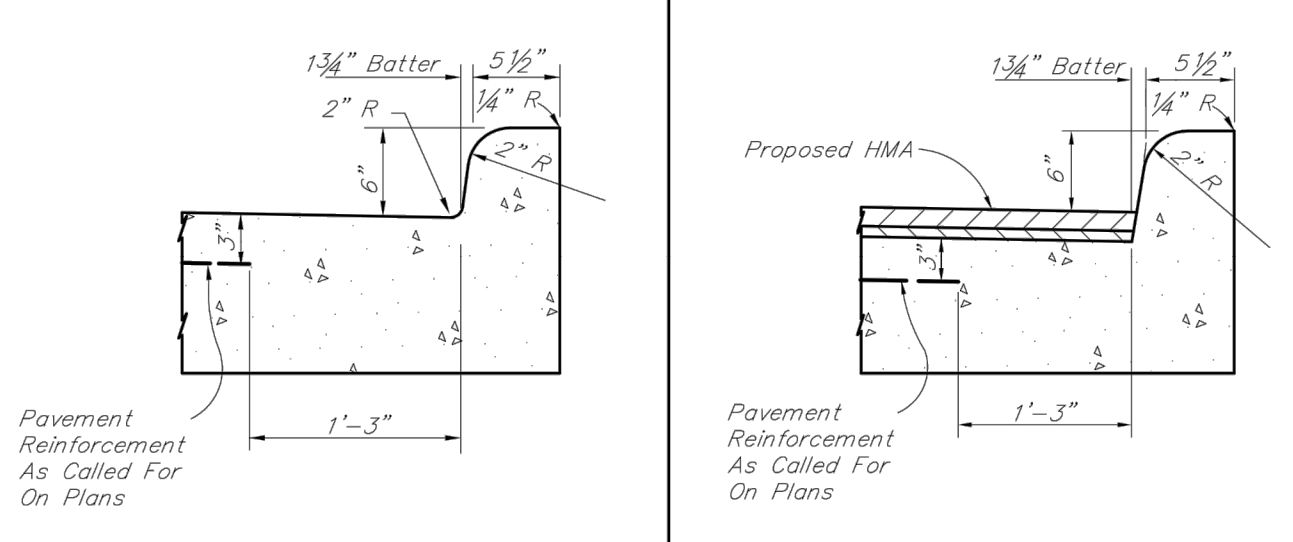
All transverse joints in the concrete pavement shall extend entirely through the integral curb and be of the same kind and thickness as provided for the pavement.

The joint material shall be pre-cut so as to conform to the geometric shape and cross sectional area of the curb, and shall be placed in contact with the filler material in the pavement.

Integral curbs, which are placed as part of a concrete base course pavement shall have transverse plane of weakness joints, formed by placing a pre-molded bituminous filler 1/4 inch thick, entirely through the curb, in exact alignment with all joints in the base course pavement. The joint material shall be pre-cut so as to conform to the geometric shape and cross sectional area of the curb.

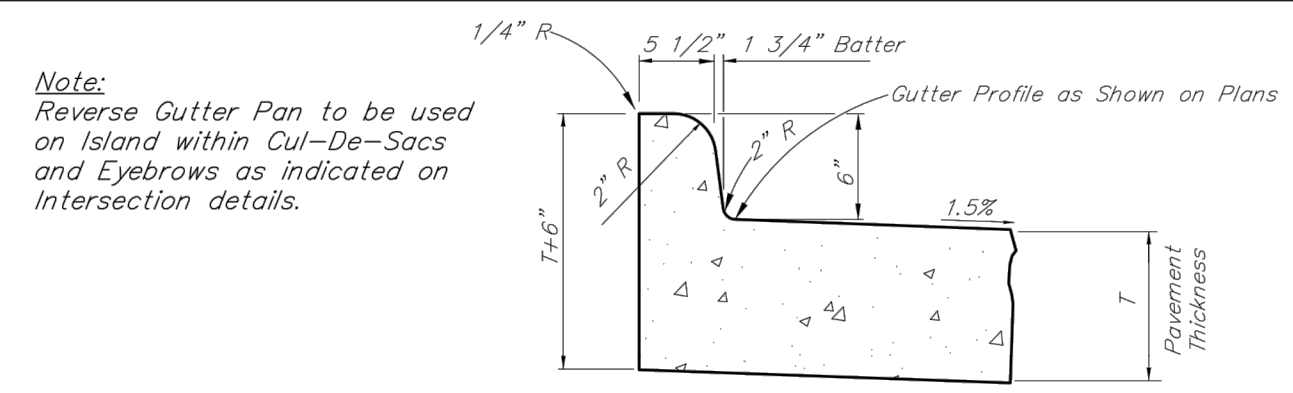
The edges of all transverse joints in the integral curb shall be rounded with an approved finishing tool having a radius of 1/4 inch.

INTEGRAL STRAIGHT CURB



CONCRETE PAVEMENT	TYPE 3	CONCRETE BASE COURSE	TYPE 4
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INTEGRAL STRAIGHT CURB W/REVERSE GUTTER PAN

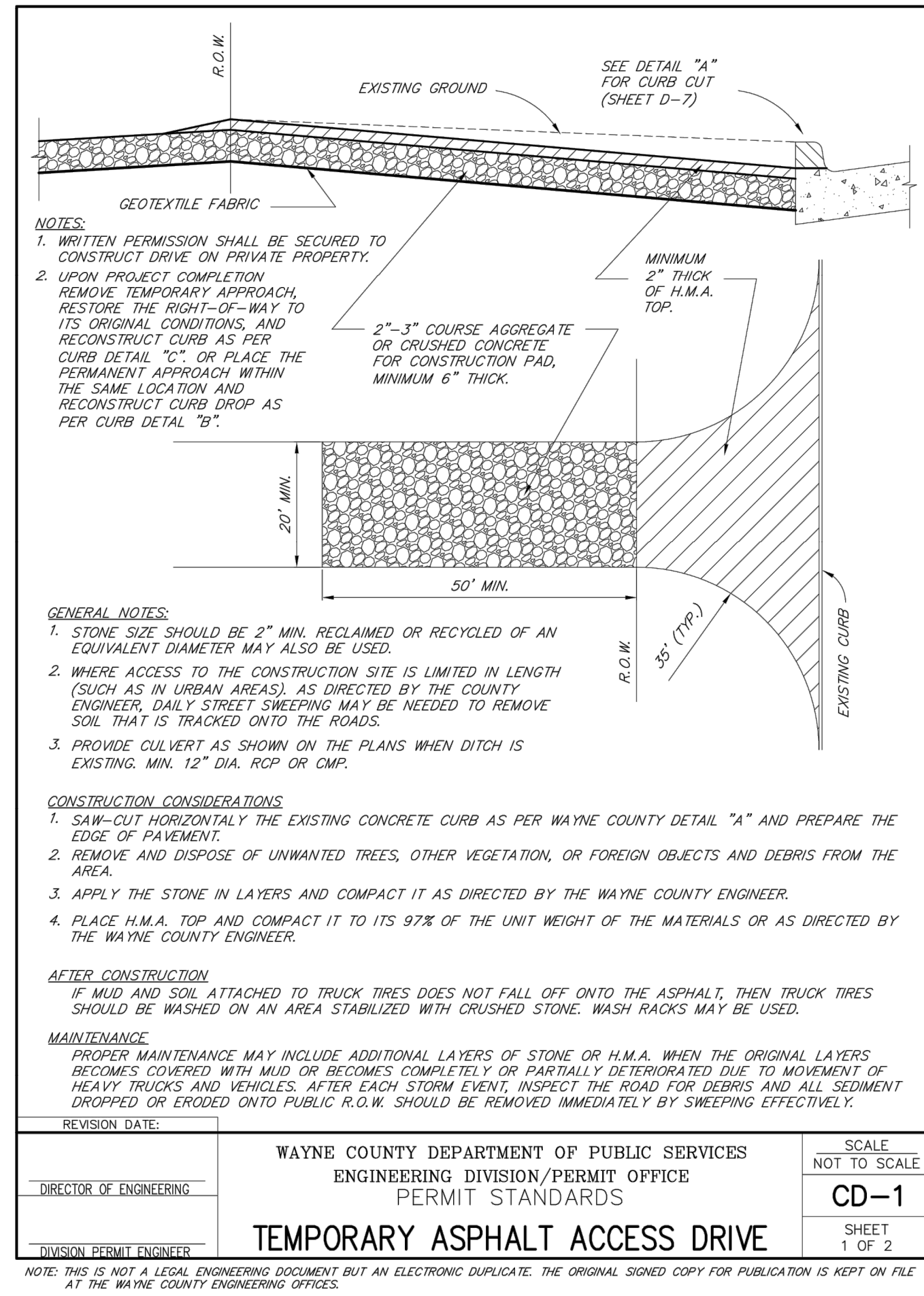


Note: Reverse Gutter Pan to be used on Island within Cul-De-Sacs and Eyebrows as indicated on Intersection details.

REVISION DATE: 08/01/07	WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES ENGINEERING DIVISION/PERMIT OFFICE PERMIT STANDARDS	SCALE NOT TO SCALE
DIRECTOR OF ENGINEERING	CURB AND CURB & GUTTER DETAILS	RS-3
DIVISION PERMIT ENGINEER		SHEET 1 OF 3

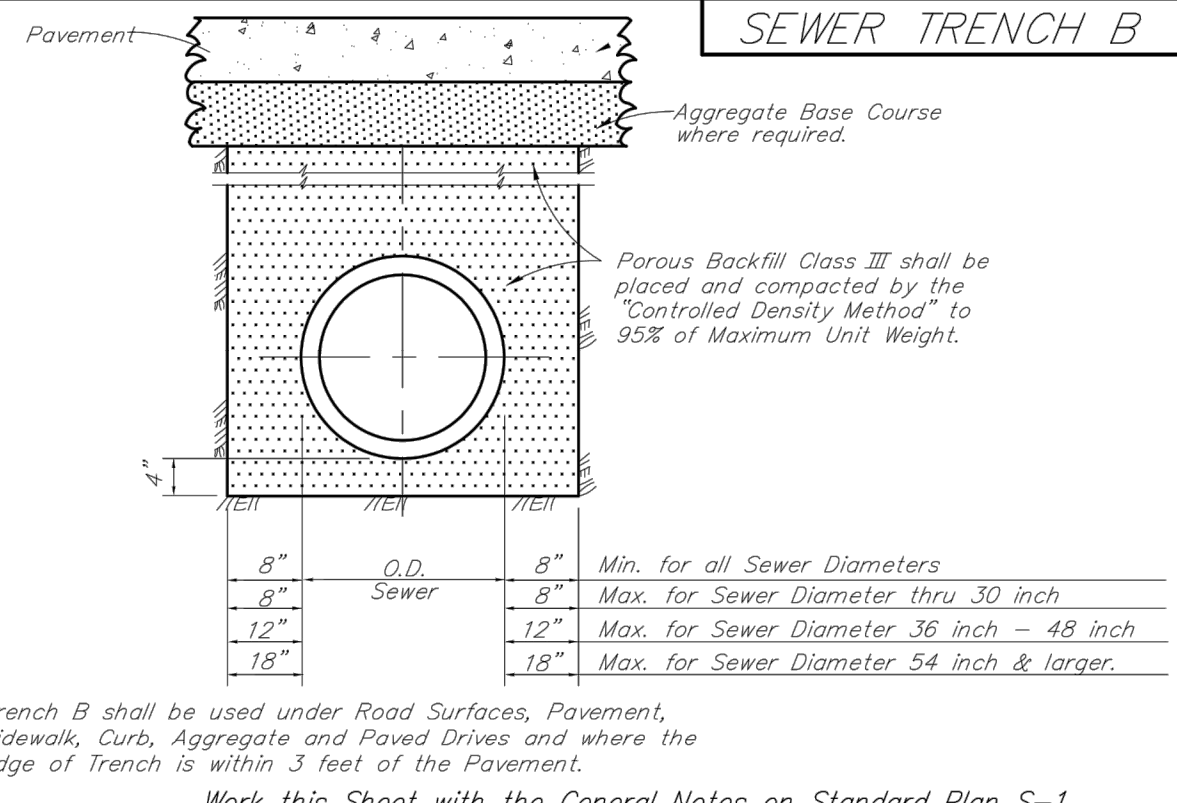
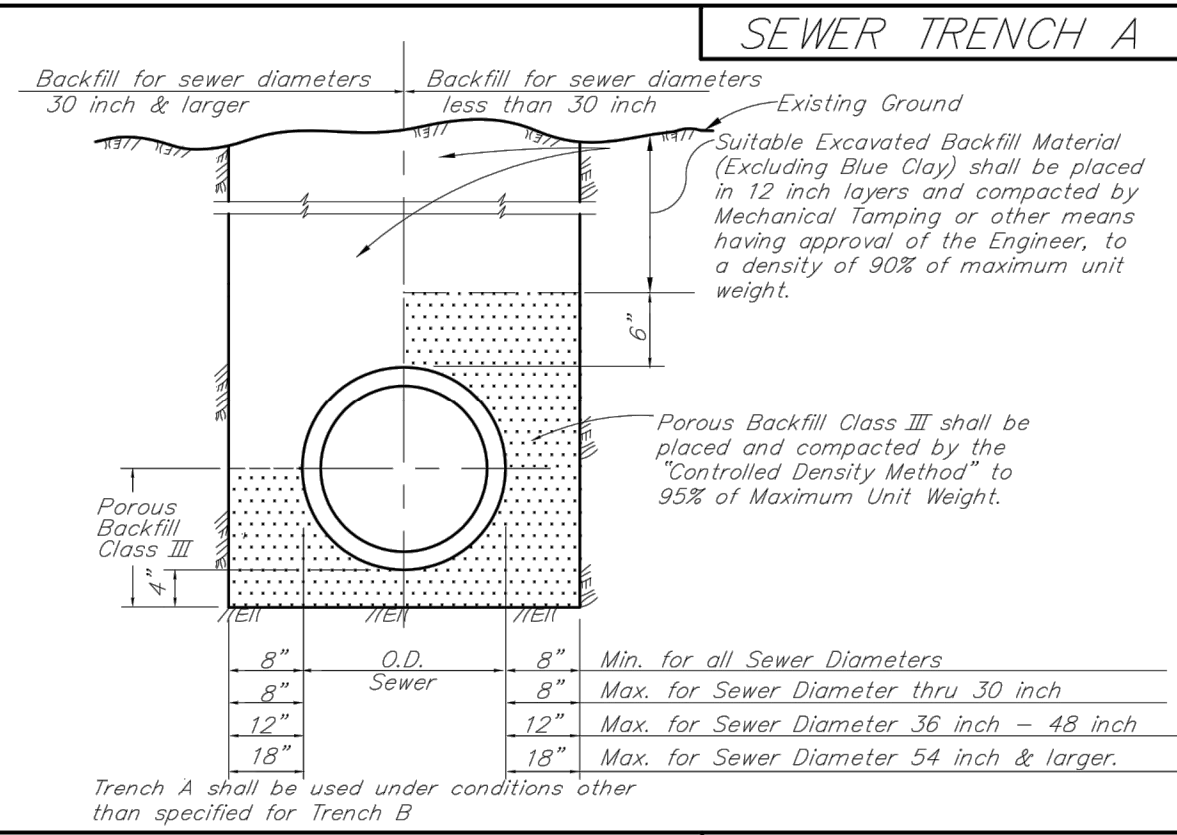
Work This Sheet with the General Notes on RS-1.

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REVISION DATE:	WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES ENGINEERING DIVISION/PERMIT OFFICE PERMIT STANDARDS	SCALE NOT TO SCALE
DIRECTOR OF ENGINEERING	TEMPORARY ASPHALT ACCESS DRIVE	CD-1
DIVISION PERMIT ENGINEER		SHEET 1 OF 2

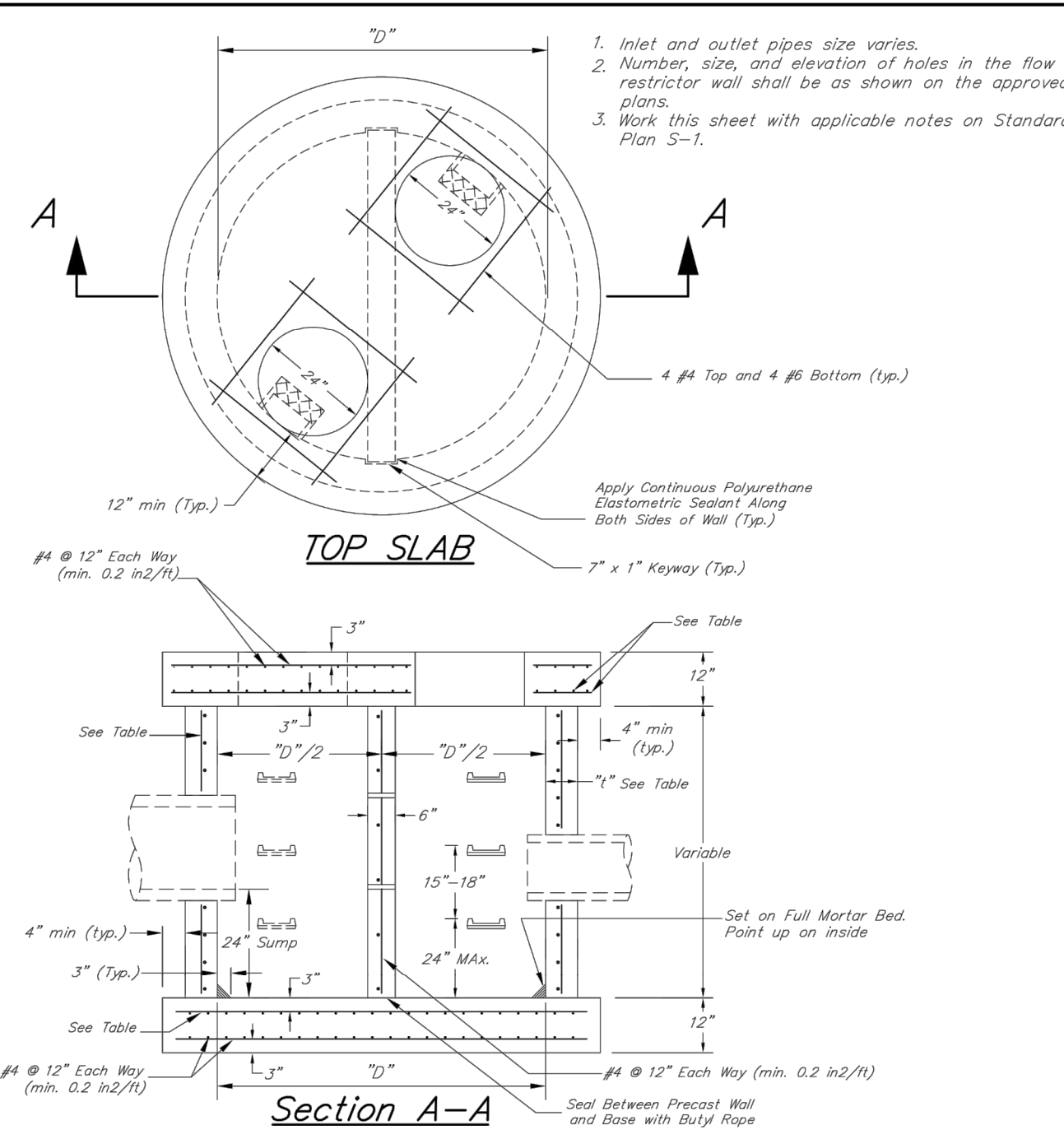
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REVISION DATE: 08/01/07	WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES ENGINEERING DIVISION/PERMIT OFFICE PERMIT STANDARDS	SCALE NOT TO SCALE
DIRECTOR OF ENGINEERING	SEWER TRENCH A, B	S-12
DIVISION PERMIT ENGINEER		SHEET 1 OF 1

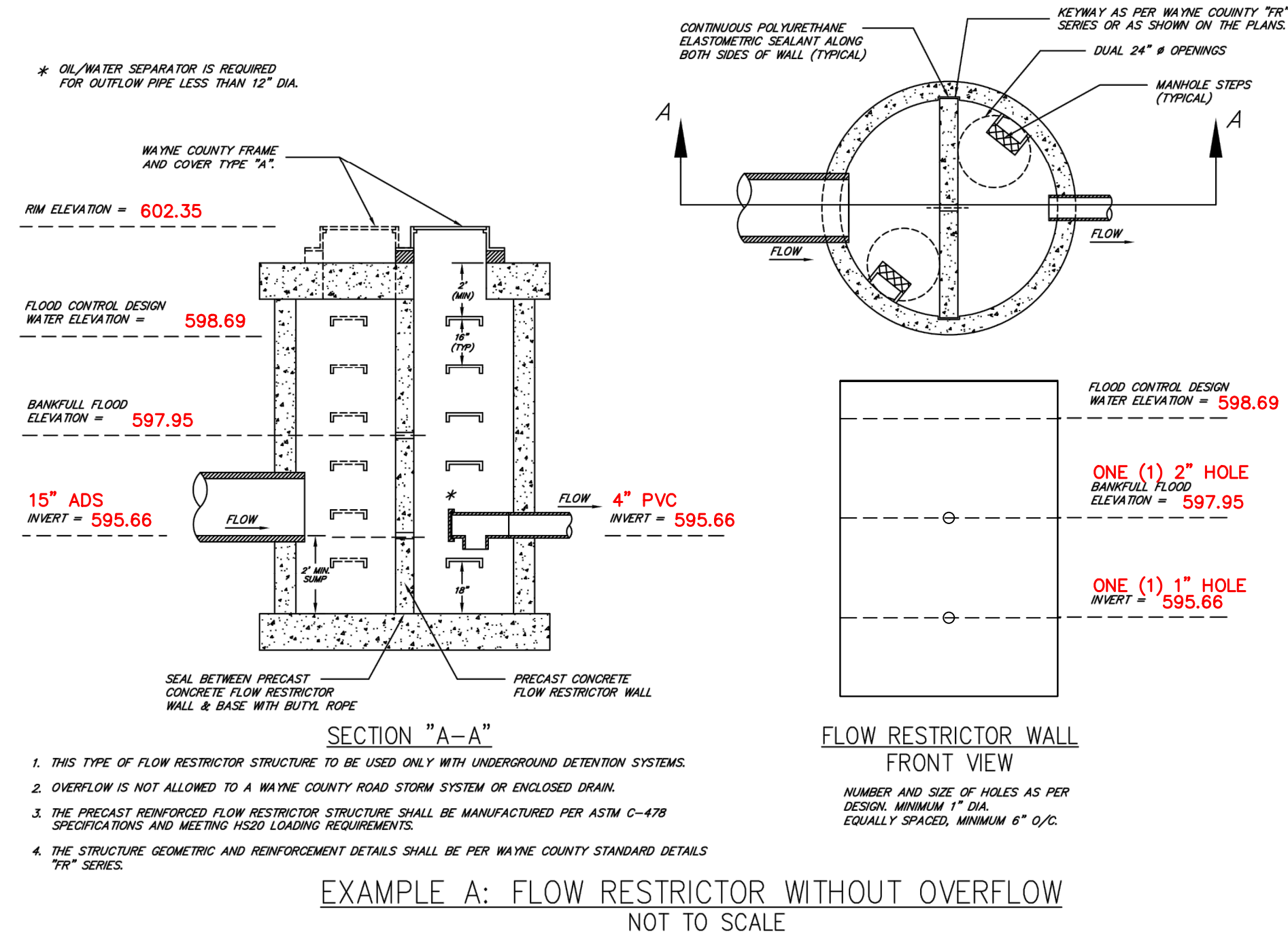
Work this Sheet with the General Notes on Standard Plan S-1.

NOTE: THIS IS NOT A LEGAL ENGINEERING DOCUMENT BUT AN ELECTRONIC DUPLICATE. THE ORIGINAL SIGNED COPY FOR PUBLICATION IS KEPT ON FILE AT THE WAYNE COUNTY ENGINEERING OFFICES.



REVISION DATE:	WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES ENGINEERING DIVISION/PERMIT OFFICE PERMIT STANDARDS	SCALE NOT TO SCALE
DIRECTOR OF ENGINEERING	PRECAST FLOW RESTRICTOR STRUCTURE	FR-1
DIVISION PERMIT ENGINEER		SHEET 1 OF 1

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THE MANUFACTURER OF THE FLOW CONTROL STRUCTURE MUST CONTACT THE WAYNE COUNTY TESTING OFFICE AT (734) 595-6504 EXT. 2015 AT LEAST THREE WORKING DAYS PRIOR TO FABRICATION TO SCHEDULE INSPECTION DURING FABRICATION.

LANDTECH
Professional Surveying & Engineering
P.O. Box 193
1275 McGregor Way, Grawn, MI 49637
PH: 231.943.0050 FAX: 231.943.0051
www.landtechps.com

WT DEVELOPMENT CORPORATION
WT Development Corporation
10223 E. Cherry Bend Rd., Ste. A
Traverse City, Michigan, 49684
Contact: Bill Becker, President
Phone: (231) 922-9250
Fax: (231) 922-9257

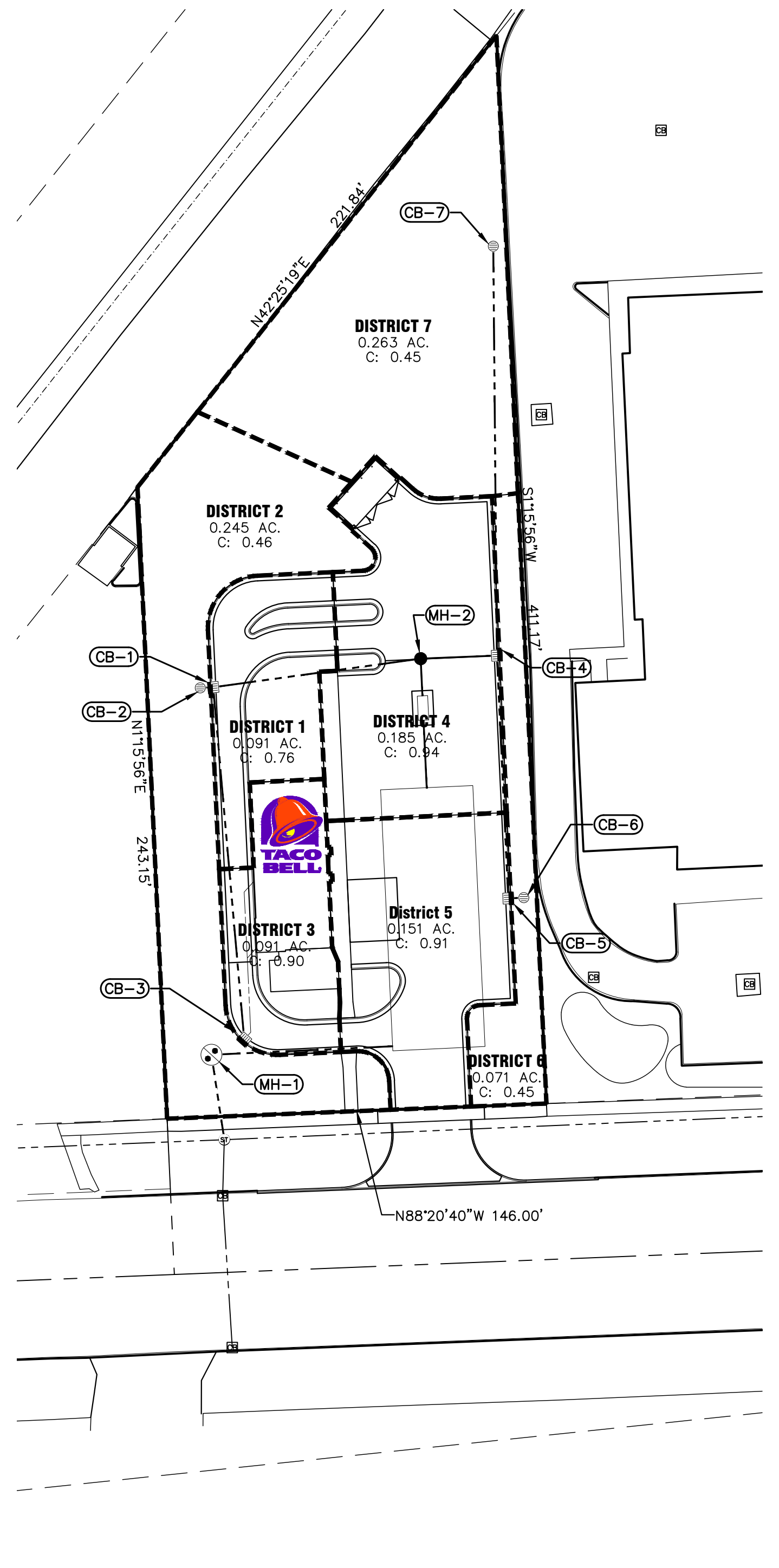
PROJECT CONSULTANT

ELEC. ROUTE/MH PER DTE 08.06.18	
ADA PWMT TYPE 08.13.18	
ISSUE DATE:	06.19.2018
BUILDING TYPE:	EXPLORER LITE
PLAN VERSION:	MEDIUM 40
SITE NUMBER:	312529
ENTITY NUMBER:	445209

TACO BELL
19578 NORTH LINE ROAD
SOUTHGATE, MI 48195

WAYNE COUNTY STANDARD DETAILS

C3.5



DRAINAGE PLAN 1" = 40' 15

DRAINAGE SUMMARY
NRCS SOIL TYPE: BLOUNT LOAM / PEWAMO LOAM
HYDROLOGIC SOIL GROUP: C/D, SLOPES <4%
DRAINAGE AREA: 47,764 S.F. (1.096 ACRES)
DETENTION REQUIREMENTS: 10-YEAR STORM EVENT (DRAINAGE AREA < 5 ACRES)

Underground Detention Storm System

10-year Storm

	Area (acre)	C	A x C
Pavement	0.422	0.95	0.4009
Gravel	0.95	0.0000	
Buildings/Roofs	0.043	0.95	0.0409
Lawns	0.632	0.45	0.2844
Off-site drainage		0.45	0.0000
Total Drainage Area	1.097		0.7262

A (area) = 1.097 Acres
C_{avg} = 0.662 Imp.
Frontage = 146 Ft.

Q_a (allowable) = 0.165 cfs
Q_a (allowable) = 0.15 cfs
Use the smaller value = 0.15 cfs

Q_o (max.) = 0.21 cfs/acre imp.
Q_o = Q_a / (A x C)

T₁₀ = 128.19 min.
V₁₀ = 6825 ft³/acre imp.
V₁₀ = 4,956 ft³
V₁₀ = 3,747 ft³

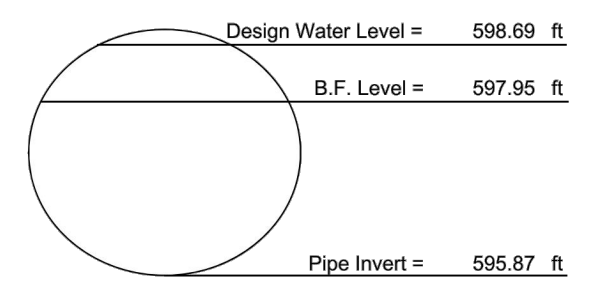
First Flush calculations will not be required due to existence of mechanical forebay

Pipe Size = 36 inch
Total Length = 719 ft
Area = 7,069 ft²
Provided volume = 5,082 ft³

Z_o = 595.87
Z_u = 595.66

Bank Full Elevation
Required Area = 5.22 ft²
Water depth = 2.08 ft
V₁₀ Elev. = 597.95 ft

10-year Storm Elevation
Required Area = 6.89 ft²
Water depth = 2.82 ft
V₁₀ Elev. = 598.69 ft



Underground Detention Storm System

Control Outlet Structure Design

Sizing for Bank Full Flood
Bank full discharge should be released within time period 40 hours

Q_{avg} = 0.026 cfs
h_{avg} = 1.25 ft
A = 0.00468 ft²
Hole Dia. = 1.00 in
Hole # = 0.858
Use 1 holes @ elev. 595.66 ft
A_{actual} = 0.00545 ft²
Q_{avg, actual} = 0.03 cfs
Actual Time = 34.69 hrs

Q_{avg} = V₁₀ / (40 x 3600)
h_{avg} = 0.5 x (Z_u - Z_o) + (Z_u - Z_{u,d})
A = Q_{avg} / (0.62 x (32.2 x 2 x h_{avg})^{0.5})
A_{actual} = No. of Holes x Area of Hole
Q_{avg, actual} = 0.62 x A_{actual} (df) x (32.2 x 2 x h_{avg,df})^{0.5}
T = V₁₀ / (Q_{avg, actual} x 3600)

Sizing for 10-year Flood

Q_{peak} = 0.15 cfs
Calculate the bank full hole(s) contribution
H_{avg,df} = 3.03 ft
Q_{avg,df} = 0.047 cfs
Extra Hole(s) are Required
Q_{adjusted} = 0.103 cfs
h_{max} = 0.74 ft
A = 0.0241 ft²
Hole Size = 2 in
Hole # = 1.105
Use 1 holes @ Bank Full elev. 597.95 ft
A_{actual} = 0.02182 ft²
Q_{avg, actual} = 0.14 cfs

H_{avg,df} = Z₁₀ - Z_o + (Z_o - Z_{u,d})
Q_{avg,df} = (0.62 X A_{actual,df} x (32.2 x 2 x h_{avg,df})^{0.5})
Q_{adjusted} = Q_{peak} - Q_{avg,df}
h_{max} = Z₁₀ - Z_{df}
Q_{adjusted} / (0.62 X 32.2 x 2 x h_{max})^{0.5}
= Q_{10year}, if Discharging to a Drain
= Q_a, if Discharging to a Road Storm System

Outlet Design

Q_{peak} = 0.15 cfs
Pipe Size = 4 in
n = 0.012
Area = 0.08727 ft²
R = 0.0833 ft
Min. Slope = 0.53 %
V = 1.7 ft/s

FLOOD STORAGE VOLUME CALCULATIONS 2

DISTRICT 1 (CB-1)					DISTRICT 3 (CB-3)					DISTRICT 5 (CB-5)				
DESCRIPTION	AREA (S.F.)	RUN-OFF COEFF.	A x C		DESCRIPTION	AREA (S.F.)	RUN-OFF COEFF.	A x C		DESCRIPTION	AREA (S.F.)	RUN-OFF COEFF.	A x C	
ASPHALT	0	0.95	0.0		ASPHALT	844	0.95	801.8		ASPHALT	5,534	0.95	5,257.3	
CONCRETE	2,422	0.95	2,300.9		CONCRETE	480	0.95	456.0		CONCRETE	0	0.95	0.0	
SIDEWALKS	0	0.95	0.0		SIDEWALKS	397	0.95	377.2		SIDEWALKS	504	0.95	478.8	
BUILDINGS	0	0.95	0.0		BUILDINGS	1,886	0.95	1,791.7		BUILDINGS	0	0.95	0.0	
LAWNS	1,526	0.45	686.7		LAWNS	365	0.45	164.3		LAWNS	533	0.45	239.9	
TOTAL	3,948		2,988		TOTAL	3,972		3,591		TOTAL	6,571		5,976	
WEIGHTED RUN-OFF COEFF.		0.76			WEIGHTED RUN-OFF COEFF.		0.90			WEIGHTED RUN-OFF COEFF.		0.91		

RUN-OFF COEFFICIENTS 3

DISTRICT 6 (CB-6) IS ENTIRELY LAWNS
AREA: 3,079 SQ. FT. (0.071 ACRES)
C: 0.45

DISTRICT 7 (CB-7) IS ENTIRELY LAWNS
AREA: 11,436 SQ. FT. (0.252 ACRES)
C: 0.45

- ▲ ELEC. ROUTE/MH PER DTE 08.06.18
- ▲ ADA PWMT TYPE 08.13.18
- ▲
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ISSUE DATE: 06.19.2018
BUILDING TYPE: EXPLORER LITE
PLAN VERSION: MEDIUM 40
SITE NUMBER: 312529
ENTITY NUMBER: 445209

TACO BELL
19578 NORTH LINE ROAD
SOUTHGATE, MI 48195



DRAINAGE PLAN

C5.0

PLOT DATE: 08.13.2018

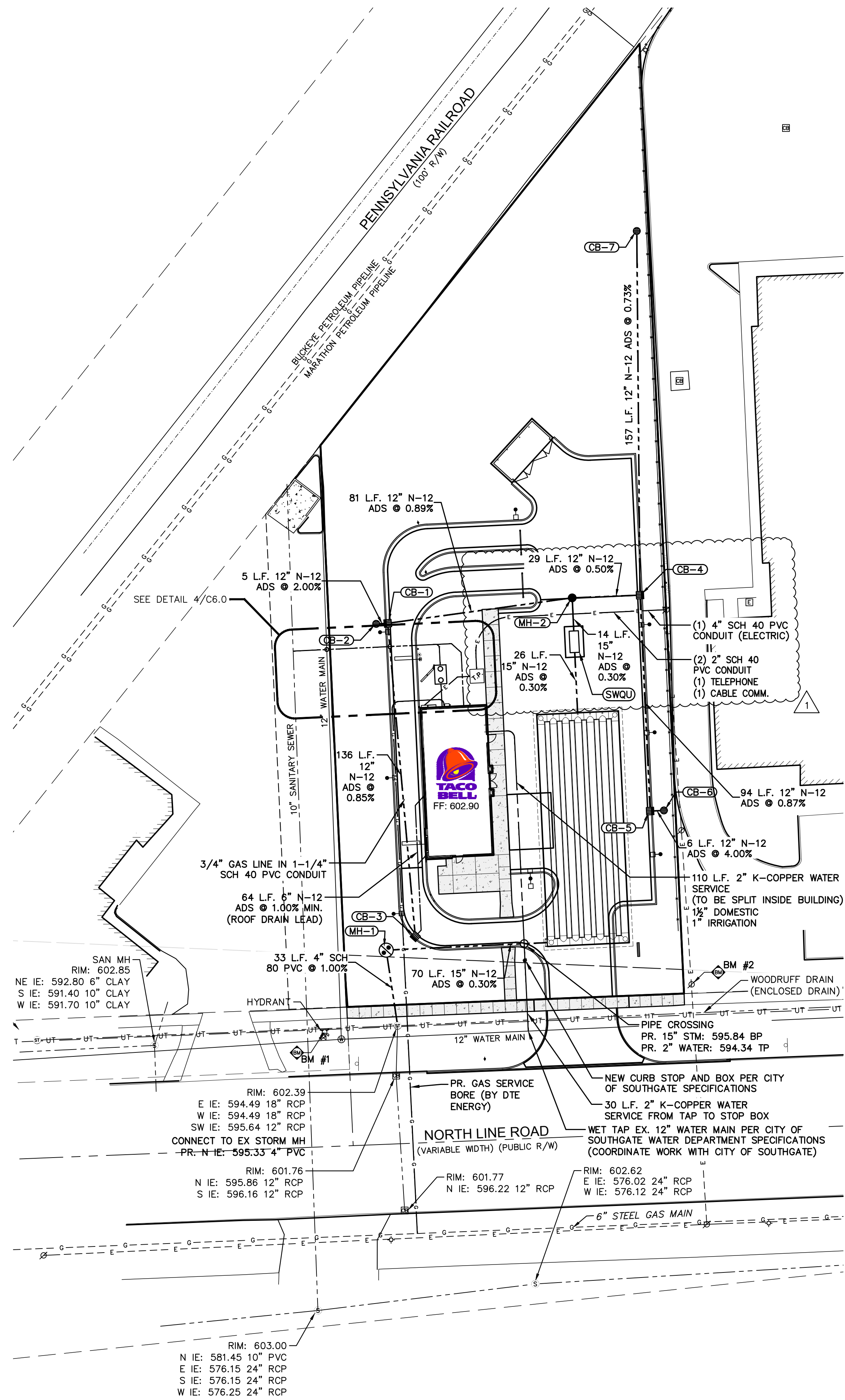
STORM SEWER DESIGN CALCULATIONS 8

From Structure No.	To Structure No.	Incremental Area	Run-off Coefficient	A x C	Cumulative Area	Cumulative A x C	Time of Concentration	Rainfall Intensity	Peak Discharge	Pipe Diameter	Pipe Length	Pipe Material	Pipe Slope	Velocity	Flow Depth	Maximum Pipe Capacity	Time in Pipe	Cumulative Time	EGL (Up)	EGL (Down)	HGL (Up)	HGL (Down)	Energy Loss	Junction Loss Coeff.	Minor Loss	Invert (upstream)	Invert (downstream)	Rim Elevation (upstream)	Rim El. - HGL (Up)
CB-7	CB-4	0.263	0.45	0.12	0.26	0.12	15.00	4.35	0.51	12	157	HDPE	0.0073	3.05	4.1	3.31	0.86	15.86	598.28	597.94	598.18	597.93	0.35	1.00	0.11	597.84	596.69	601.61	3.43
CB-6	CB-5	0.071	0.45	0.03	0.07	0.03	15.00	4.35	0.14	12	6	HDPE	0.0400	3.80	1.0	7.74	0.03	15.03	598.04	598.17	597.99	598.11	0.00	1.00	--	597.82	597.58	601.32	3.33
CB-5	CB-4	0.151	0.91	0.14	0.22	0.17	15.03	4.35	0.73	12	94	HDPE	0.0087	3.60	3.7	3.60	0.43	15.46	598.07	597.95	597.99	597.93	0.13	1.50	0.12	597.50	596.69	601.55	3.56
CB-4	MH-2	0.185	0.94	0.17	0.67	0.46	15.86	4.25	1.96	12	30	HDPE	0.0050	3.79	7.4	2.74	0.13	15.99	596.92	596.91	597.74	597.64	0.00	1.50	0.22	596.63	596.48	601.51	3.77
CB-3	CB-1	0.091	0.90	0.08	0.09	0.08	15.00	4.35	0.36	12	136	HDPE	0.0085	3.22	2.3	3.57	0.70	15.70	598.81	598.03	598.71	597.93	0.00	1.00	--	598.44	597.28	601.94	3.23
CB-2	CB-1	0.245	0.46	0.11	0.25	0.11	15.00	4.35	0.49	12	5	HDPE	0.0200	4.32	1.2	5.47	0.02	15.02	597.81	598.05	597.70	597.93	0.00	1.00	--	597.38	597.28	601.50	3.80
CB-1	MH-2	0.091	0.76	0.07	0.43	0.26	15.70	4.26	1.12	12	80	HDPE	0.0090	4.11	2.3	3.67	0.32	16.03	597.86	597.68	597.73	597.64	0.18	1.50	0.21	597.20	596.48	601.68	3.95
MH-2	SWQU				1.10	0.73	16.03	4.23	3.06	15	10	HDPE	0.0030	3.48	10.1	3.84	0.05	16.08	597.64	597.62	597.52	597.50	0.02	1.00	0.12	596.28	596.25	601.82	4.30

NOTES: Peak flows determined using the rational method
Calculations based on 10-year storm frequency using Wayne County rainfall intensity (I = 151.8/(t+19.9))
Pipe flows determined using Chazy-Manning equation
Design Manning Roughness Constant = 0.013 (for reinforced concrete pipe)
0.012 (for smooth wall CPE pipe)
0.011 (for PVC pipe)
Pipe crown at outlet (597.50) used to derive EGL, HGL, and losses

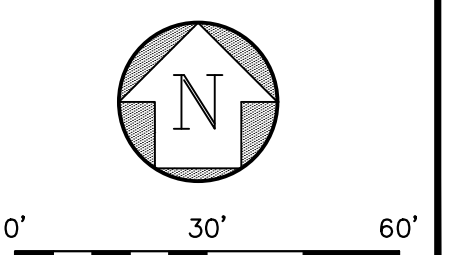
GRADING LEGEND 4

- = DRAINAGE AREA
- 2.0% = DIRECTION OF RUNOFF
- = STORM SEWER
- ⊗ = FLOW CONTROL STRUCTURE
- = STORM SEWER MANHOLE
- = CURB INLET
- = CATCH BASIN
- (582) = PROPOSED CONTOUR
- 581— = EXISTING CONTOUR



BENCHMARKS:

BM #1:	ARROW ON HYDRANT	ELEV: 605.02 (NAVD 88)
BM #2:	BENCH TIE SET IN NORTHWEST SIDE OF POWER POLE	ELEV: 603.03 (NAVD 88)



UTILITY PLAN 1" = 30' **12**

STRUCTURE TABLE

STRUCTURE	PIPES IN	PIPES OUT
CB-1 RIM: 601.68 48" DIA.	S IE: 597.28 12" N-12 ADS W IE: 597.28 12" N-12 ADS	E IE: 597.20 12" N-12 ADS
CB-2 RIM: 601.53 24" DIA.		E IE: 597.38 12" N-12 ADS
CB-3 RIM: 601.94 48" DIA.	NE IE: 598.43 6"	N IE: 598.44 12" N-12 ADS
CB-4 RIM: 601.51 48" DIA.	S IE: 596.69 12" N-12 ADS N IE: 596.69 12" N-12 ADS	W IE: 596.63 12" N-12 ADS
CB-5 RIM: 601.55 48" DIA.	E IE: 597.58 12" N-12 ADS	N IE: 597.50 12" N-12 ADS
CB-6 RIM: 601.32 24" DIA.		W IE: 597.82 12" N-12 ADS
CB-7 RIM: 601.61 24" DIA.		S IE: 597.84 12" N-12 ADS
MH-1 RIM: 602.36 72" DIA.	E IE: 595.66 15" N-12 ADS	S IE: 595.66 4" SCH 80 PVC
MH-2 RIM: 601.81 48" DIA.	E IE: 596.48 12" N-12 ADS W IE: 596.48 12" N-12 ADS	S IE: 596.29 15" N-12 ADS
SWQU RIM: 601.87 (KSI-750)	N IE: 596.25 15" N-12 ADS	S IE: 596.17 15" N-12 ADS

STORM SEWER STRUCTURE SCHEDULE **6**

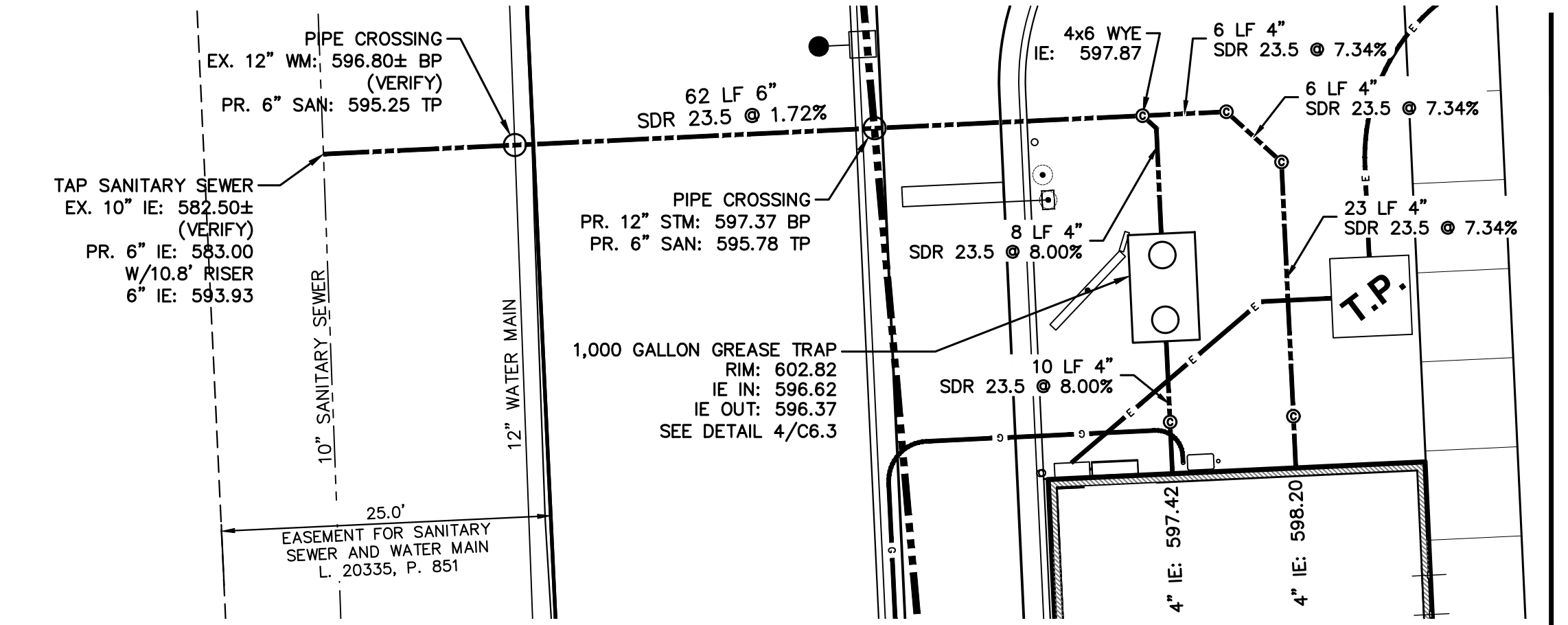
QUANTITIES LIST

DESCRIPTION	QUANTITY	UNIT
CURB AND GUTTER, 6-INCH	1,003	LF
CURB AND GUTTER, WCDPS DETAIL D-7	131	LF
HOT MIX ASPHALT PAVEMENT, LIGHT-DUTY	492	SY
HOT MIX ASPHALT PAVEMENT, HEAVY-DUTY	558	SY
P.C.C. 6" PAVEMENT	6,560	SF
P.C.C. 4" SIDEWALK	1,924	SF

UTILITIES

12" HDPE STORM SEWER	502	LF
15" HDPE STORM SEWER	106	LF
24" DIA. INLET	3	EA
48" DIA. CATCH BASIN	4	EA
48" DIA. STORM MANHOLE	1	EA
6" HDPE STORM PIPE	65	LF
MANUFACTURED STORM WATER TREATMENT DEVICE	1	EA
UNDERGROUND DETENTION SYSTEM, 36" HDPE PIPE	743	LF
DETENTION BASIN OUTLET STRUCTURE	1	EA
1,000-GALLON GREASE TRAP	1	EA
4" SCH 40 PVC SANITARY SEWER LEAD	53	EA
6" SDR 23.5 PVC SANITARY SEWER LEAD	62	LF
2" K-COPPER WATER LEAD	140	LF

QUANTITIES **7**



SANITARY SEWER LEAD DETAIL 1" = 10' **4**

PLANS ARE SUBJECT TO REVIEW AND APPROVAL BY LOCAL PUBLIC WORKS DEPARTMENT. NO CONSTRUCTION SHALL BEGIN WITHOUT ENGINEERING APPROVAL.

ALL TRENCH EXCAVATION AND BACKFILL SHALL BE IN ACCORDANCE WITH LOCAL JURISDICTION.

THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY AND ALL DAMAGE TO EXISTING STRUCTURES AND/OR UTILITIES DURING CONSTRUCTION. PROPER REPAIR SHALL BE DONE TO THE SATISFACTION OF THE APPROPRIATE UTILITY COMPANY.

THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES 72 HOURS PRIOR TO ANY EXCAVATION SO THAT SERVICE LINES CAN BE MARKED.

THE CONTRACTOR SHALL COORDINATE THE WORK TO AVOID CONFLICTS BETWEEN SEWERS, STORM DRAINS, AND WATER MAINS. TEMPORARY REPAIRS TO ALL TRENCHES WITHIN THE TRAVELED WAY, ON EXISTING ROADS, SHALL BE MADE WITHIN TWENTY-FOUR (24) HOURS OF THE TRENCH OPENING. MINIMUM TEMPORARY REPAIRS SHALL CONSIST OF BACKFILLING AND COMPACTING 6" OF AGGREGATE BASE AND 1" OF TEMPORARY ASPHALTIC SURFACE.

EXISTING UNDERGROUND FACILITIES, AS SHOWN, ARE APPROXIMATE ONLY AND WERE OBTAINED FROM AVAILABLE UTILITY RECORDS. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THEIR ACCURACY OR COMPLETENESS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT ALL LOCAL UTILITIES AND TO HAVE ALL FACILITIES LOCATED AND EXPOSED TO VERIFY THE CLEARANCE OF NEW PIPE LINE CROSSINGS BEFORE CONSTRUCTION OF NEW PIPE LINES COMMENCES.

ANY RELOCATION OF PUBLIC UTILITIES SHALL BE DONE IN ACCORDANCE WITH ANY AND ALL REQUIREMENTS OF THE UTILITY COMPANY AND WITH REGARD TO THE REQUIRED FEES, BONDS, PERMITS, WORKING CONDITIONS, ETC. OF SAID COMPANY.

ABANDONED UNDERGROUND STRUCTURES ENCOUNTERED SHALL BE REMOVED TO SUFFICIENT DEPTH TO ALLOW UNDERGROUND LINES TO CROSS.

PRIOR TO FINAL PREPARATION OF THE SUBGRADE AND PLACEMENT OF BASE MATERIAL, ALL UNDERGROUND UTILITY MAINS SHALL BE INSTALLED AND SERVICE CONNECTIONS STUBBED OUT BEYOND THE CURB LINE. SERVICES FROM PUBLIC UTILITIES AND SANITARY SEWERS SHALL BE MADE IN A MANNER THAT WILL MINIMIZE THE DISTURBANCE OF THE ADJACENT STREET. ALL CONDUITS SHALL BE SCHEDULE 40 AND BURIED AT A MINIMUM DEPTH OF 3 FEET.

SOIL EROSION CONTROL
A SOIL EROSION CONTROL PLAN IS INCLUDED AS PART OF THIS PLAN SET. THE CONTRACTOR SHALL OBTAIN A SOIL EROSION AND SEDIMENTATION CONTROL PERMIT FROM THE LOCAL JURISDICTION, INCLUDING THE PAYMENT OF FEES AND THE PROVIDING OF NECESSARY BONDS. NO EARTH CHANGES OF EXCAVATION SHALL BE STARTED PRIOR TO THE ISSUANCE OF THIS PERMIT.

THE CONTRACTOR SHALL PROTECT ALL EXISTING AND PROPOSED SEWER FACILITIES ON OR ADJACENT TO THE SITE DURING EXCAVATION AND CONSTRUCTION. ALL SEDIMENT SHALL BE CONTAINED ON SITE. ANY SILT IN COUNTY DRAINS, STORM SEWER, CULVERTS, ETC. AS A RESULT OF THIS PROJECT SHALL BE REMOVED BY THE CONTRACTOR.

FLOOD PLAIN OR WETLAND CONSTRUCTION
THE PROJECT SITE IS NOT LOCATED WITHIN ANY FLOOD PLAIN OR FLOODWAY.

NPDES STORM WATER DISCHARGE PERMIT IS NOT REQUIRED FOR THIS PROJECT.

PERMIT TO CONSTRUCT PUBLIC UTILITY
NO PUBLIC UTILITIES ARE BEING CONSTRUCTED UNDER THIS PROJECT.

MUNICIPALITY SEWER & WATER PERMIT
PRIOR TO CONSTRUCTION CONTRACTOR SHALL VERIFY WITH THE OWNER THAT SEWER AND WATER SERVICE PERMITS HAVE BEEN OBTAIN AND FEES PAID.

STATE CONSTRUCTION PERMITS
NO NEW SANITARY SEWER OR WATER MAINS ARE TO BE CONSTRUCTED UNDER THIS PROJECT. NO MDEQ PERMITS ARE REQUIRED.

UTILITY NOTES **2**

UTILITY LEGEND **3**

	PR. FLOW CONTROL STRUCTURE
	PR. STORM MANHOLE
	PR. CURB INLET
	PR. CATCH BASIN
	PR. CURB BOX
	PR. CLEANOUT
	PR. SIGN
	PR. LIGHT POLE
	PR. ASPHALT PAVEMENT (HEAVY DUTY)
	PR. ASPHALT PAVEMENT (LIGHT DUTY)
	PR. CONCRETE PAVEMENT
	PR. THICKENED CONCRETE SIDEWALK

UTILITY LEGEND **3**

LANDTECH
Professional Surveying & Engineering
P.O. Box 193
1275 McGregor Way, Grawn, MI 49637
PH: 231.943.0050 FAX: 231.943.0051
www.landtechps.com

WT DEVELOPMENT CORPORATION
WT Development Corporation
10223 E. Cherry Bend Rd., Ste. A
Traverse City, Michigan, 49684
Contact: Bill Becker, President
Phone: (231) 922-9250
Fax: (231) 922-9257

PROJECT CONSULTANT

ELEC. ROUTE/MH PER DTE 08.06.18
ADA PWMT TYPE 08.13.18

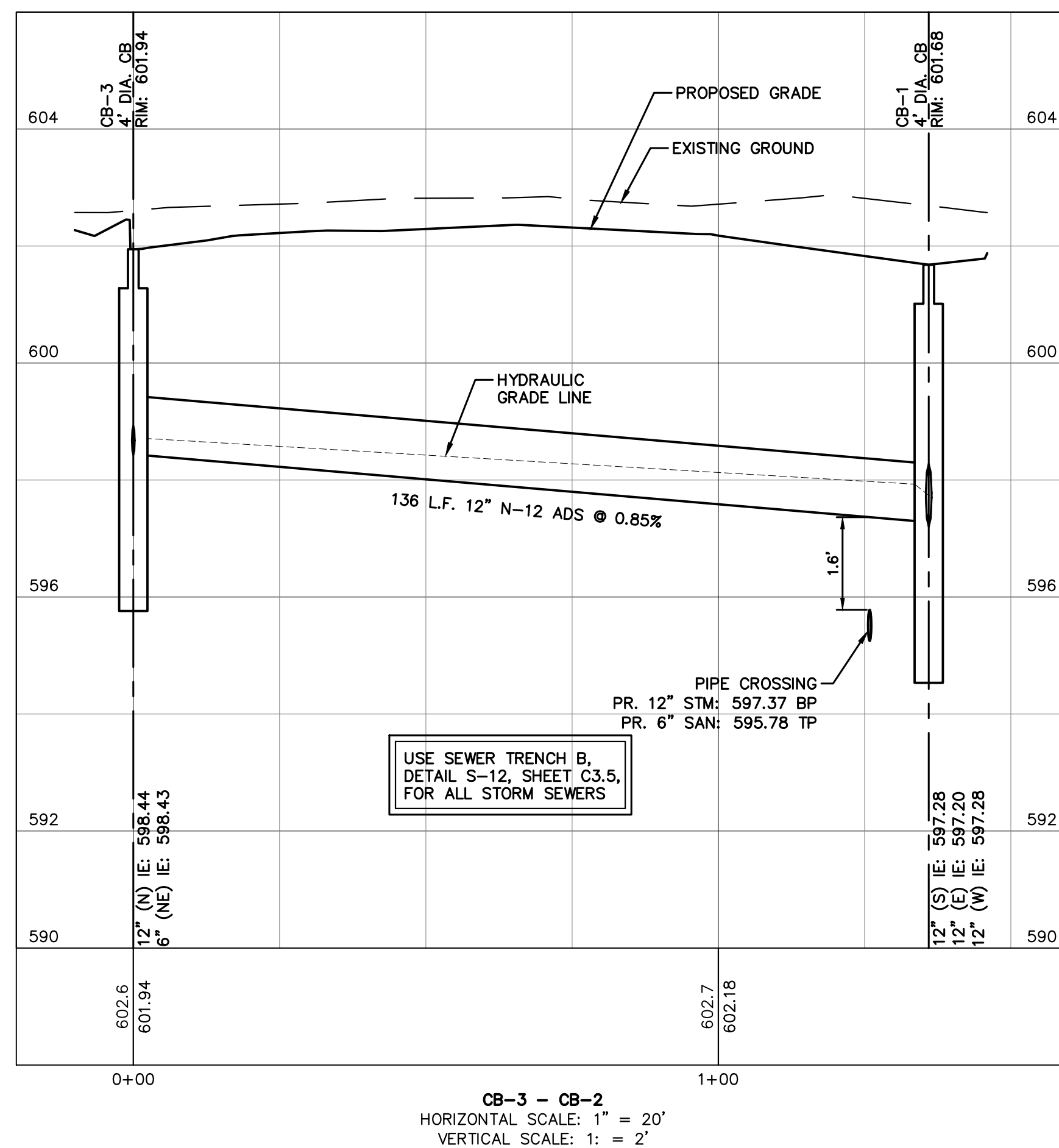
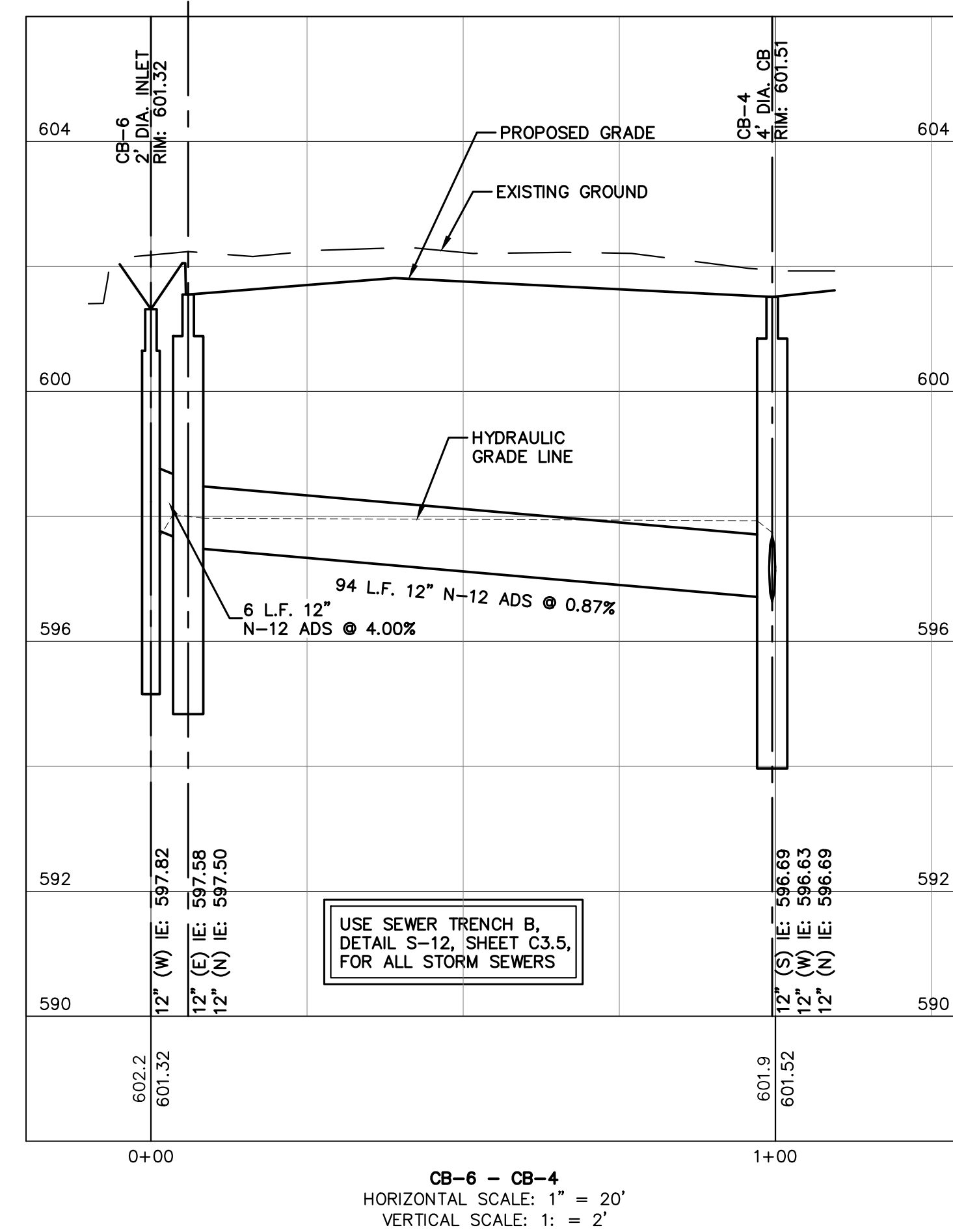
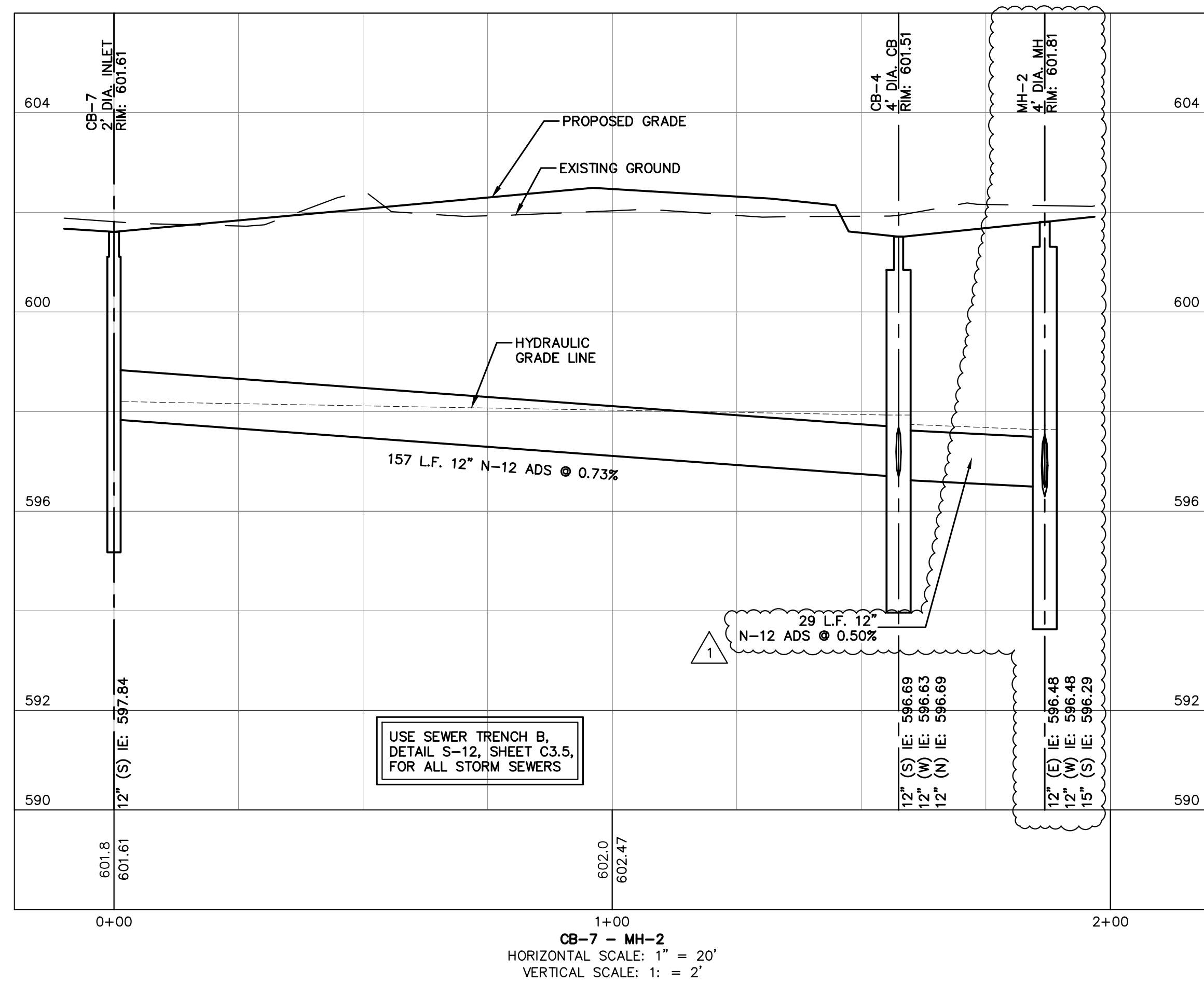
ISSUE DATE: 06.19.2018
BUILDING TYPE: EXPLORER LITE
PLAN VERSION: MEDIUM 40
SITE NUMBER: 312529
ENTITY NUMBER: 445209

TACO BELL
19578 NORTH LINE ROAD
SOUTHGATE, MI 48195



UTILITY PLAN
C6.0

PLANT DATE: 08.13.2018



- △ ELEC. ROUTE/MH PER DTE 08.06.18
- △ ADA PWMT TYPE 08.13.18
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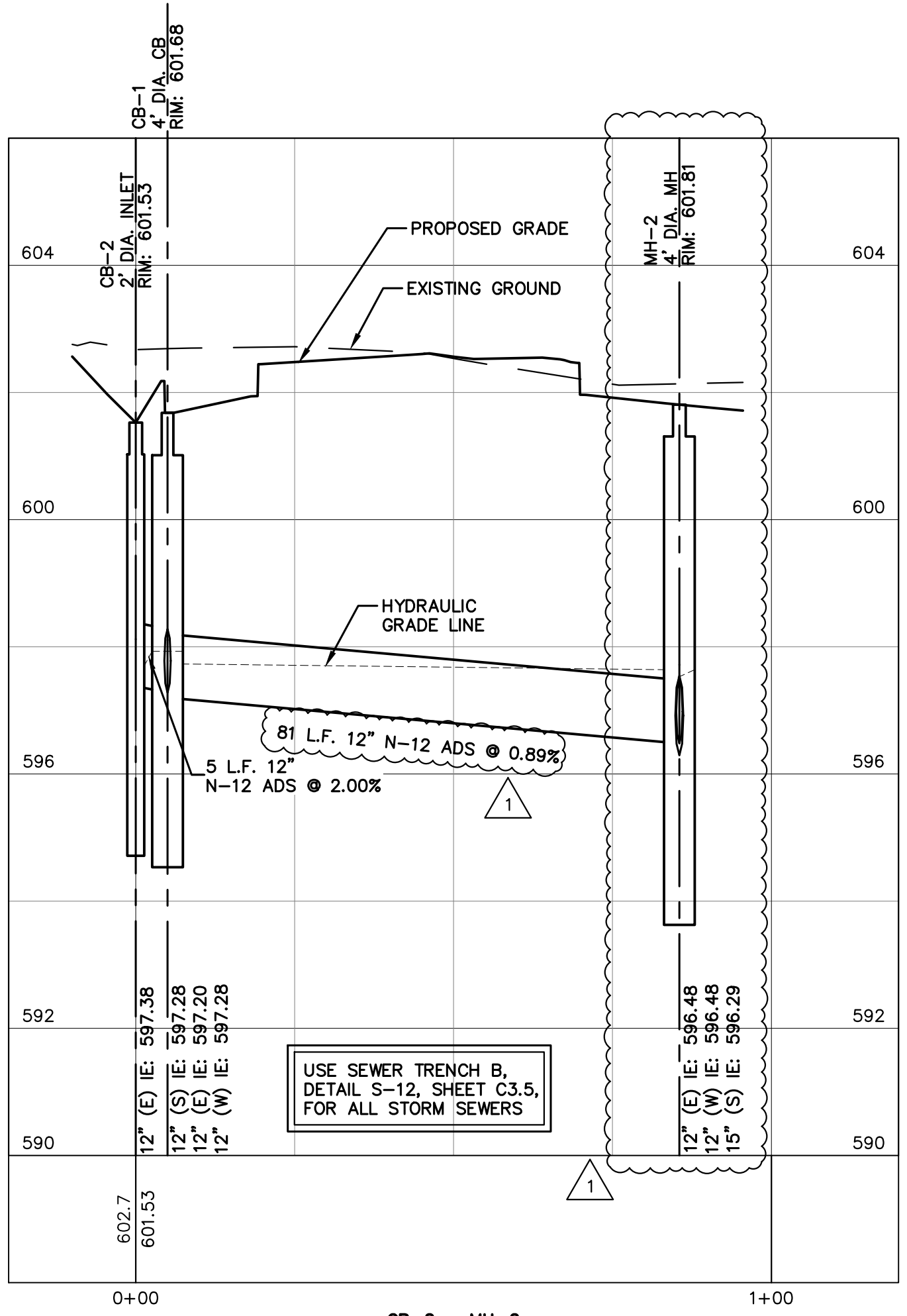
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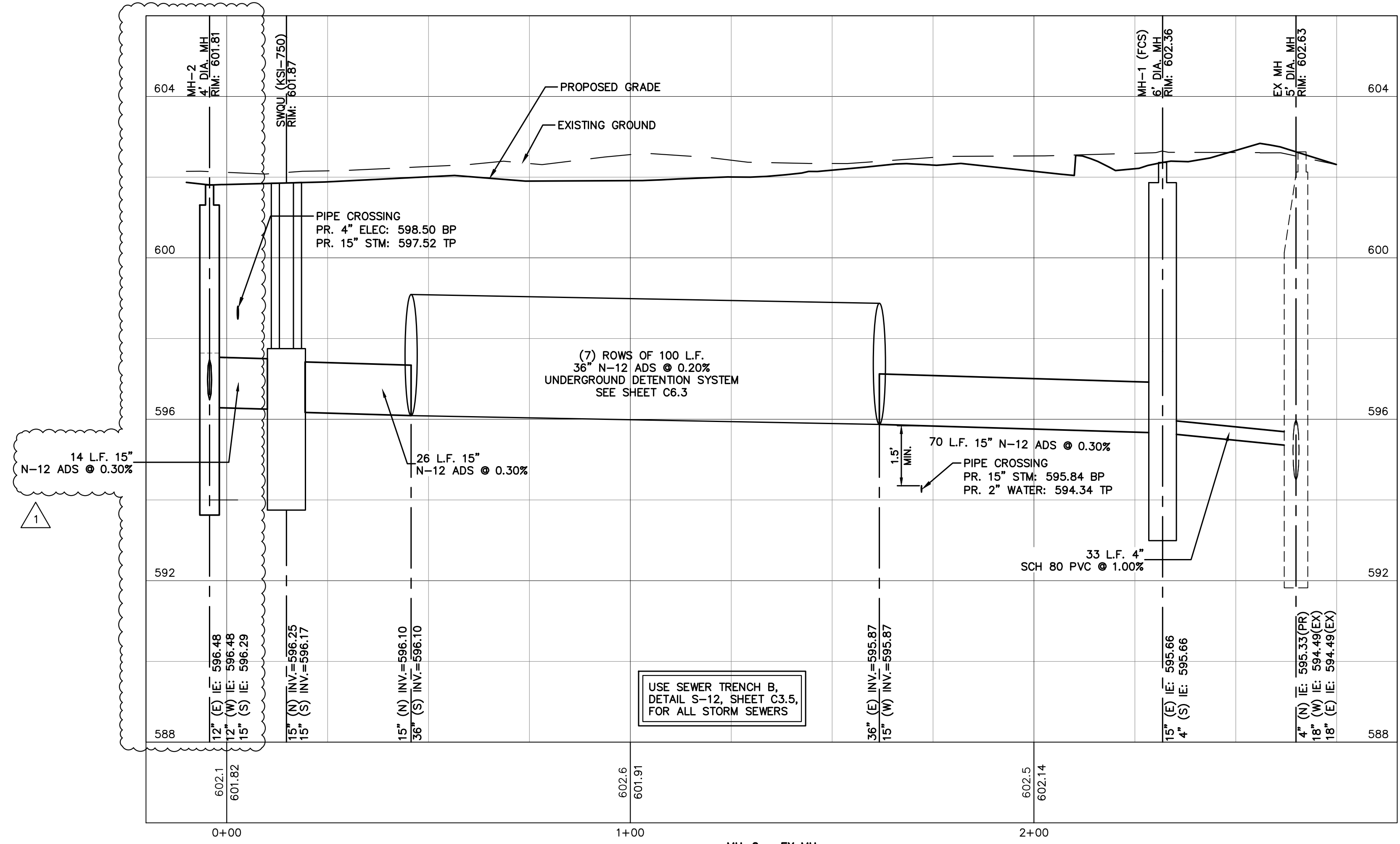


**STORM
SEWER
PROFILES**

C6.1



CB-2 - MH-2
 HORIZONTAL SCALE: 1" = 20'
 VERTICAL SCALE: 1" = 2'



MH-2 - EX MH
 HORIZONTAL SCALE: 1" = 20'
 VERTICAL SCALE: 1" = 2'

△	ELEC. ROUTE/MH PER DTE 08.06.18
△	ADA PWMT TYPE 08.13.18
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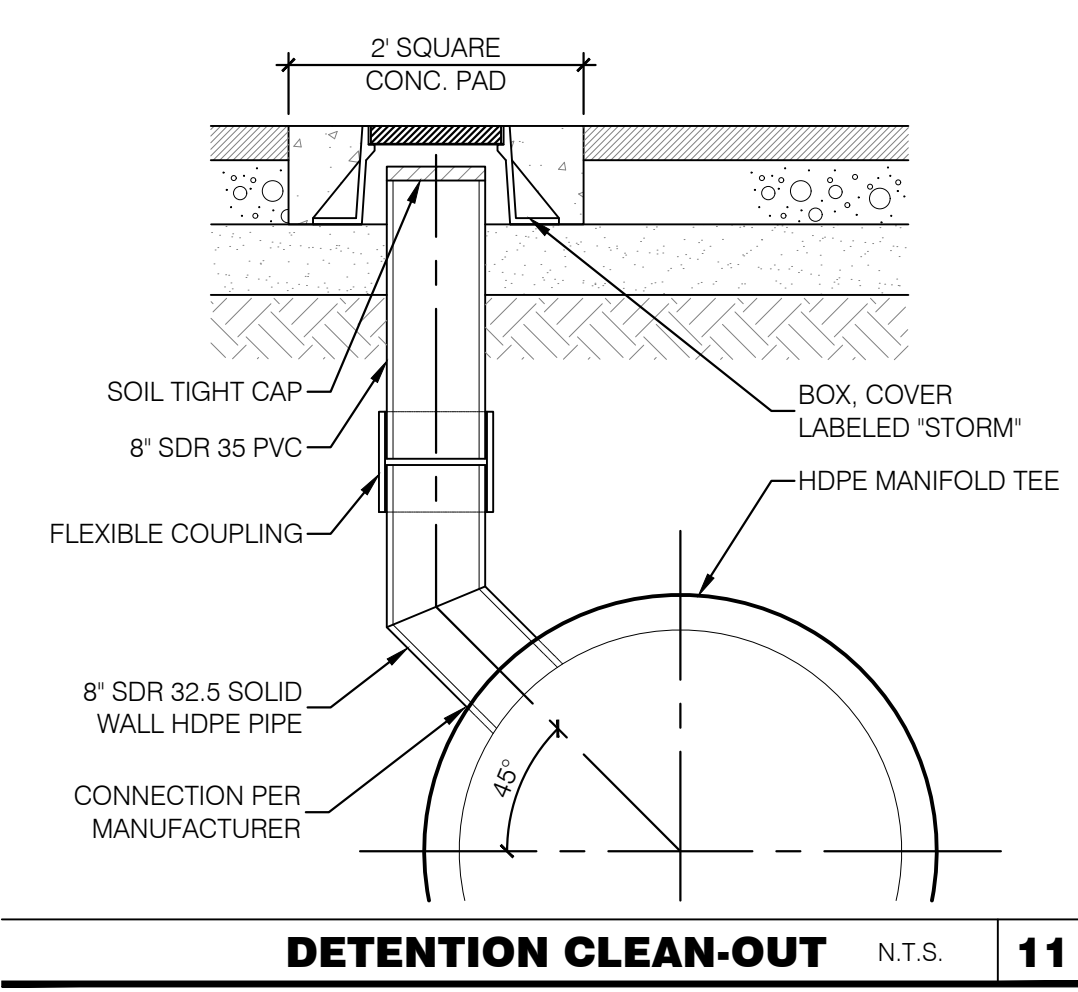
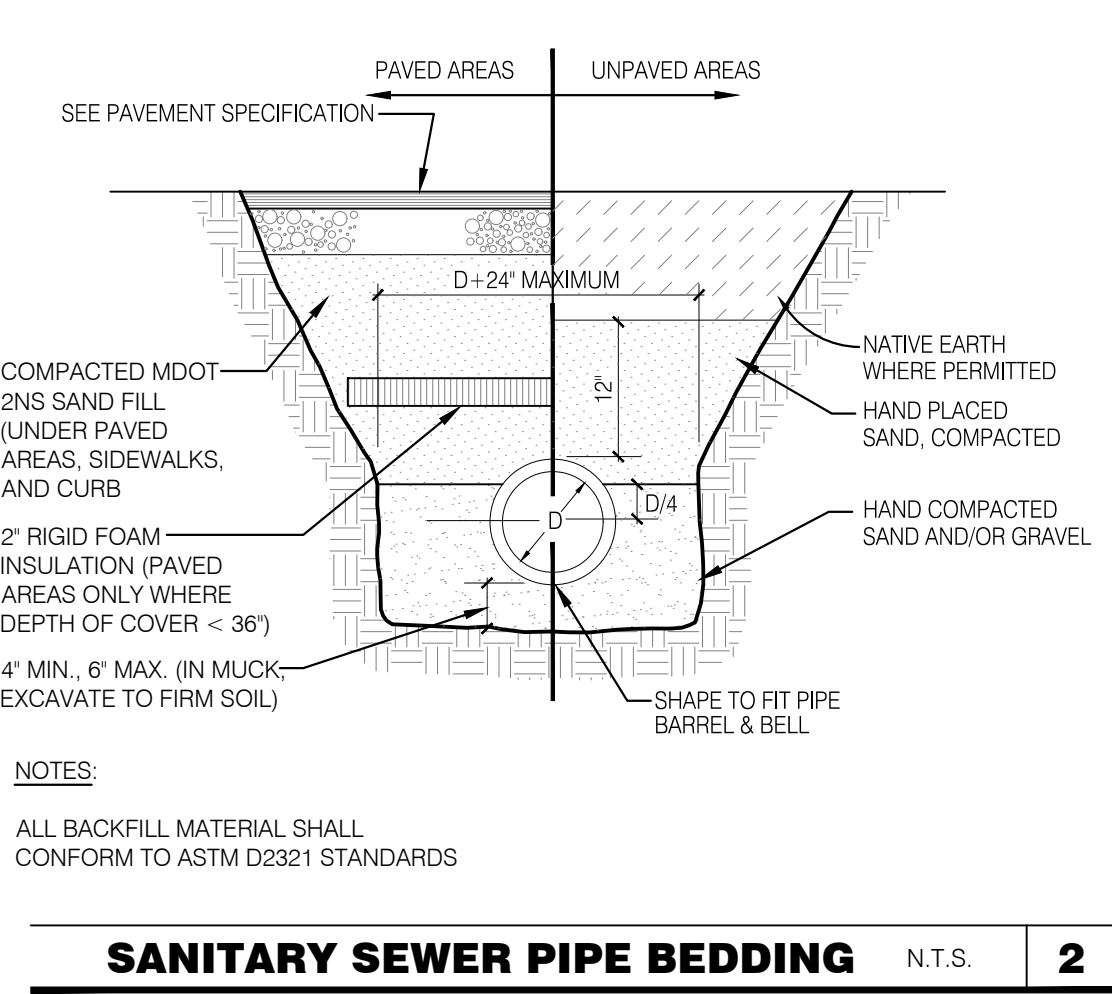
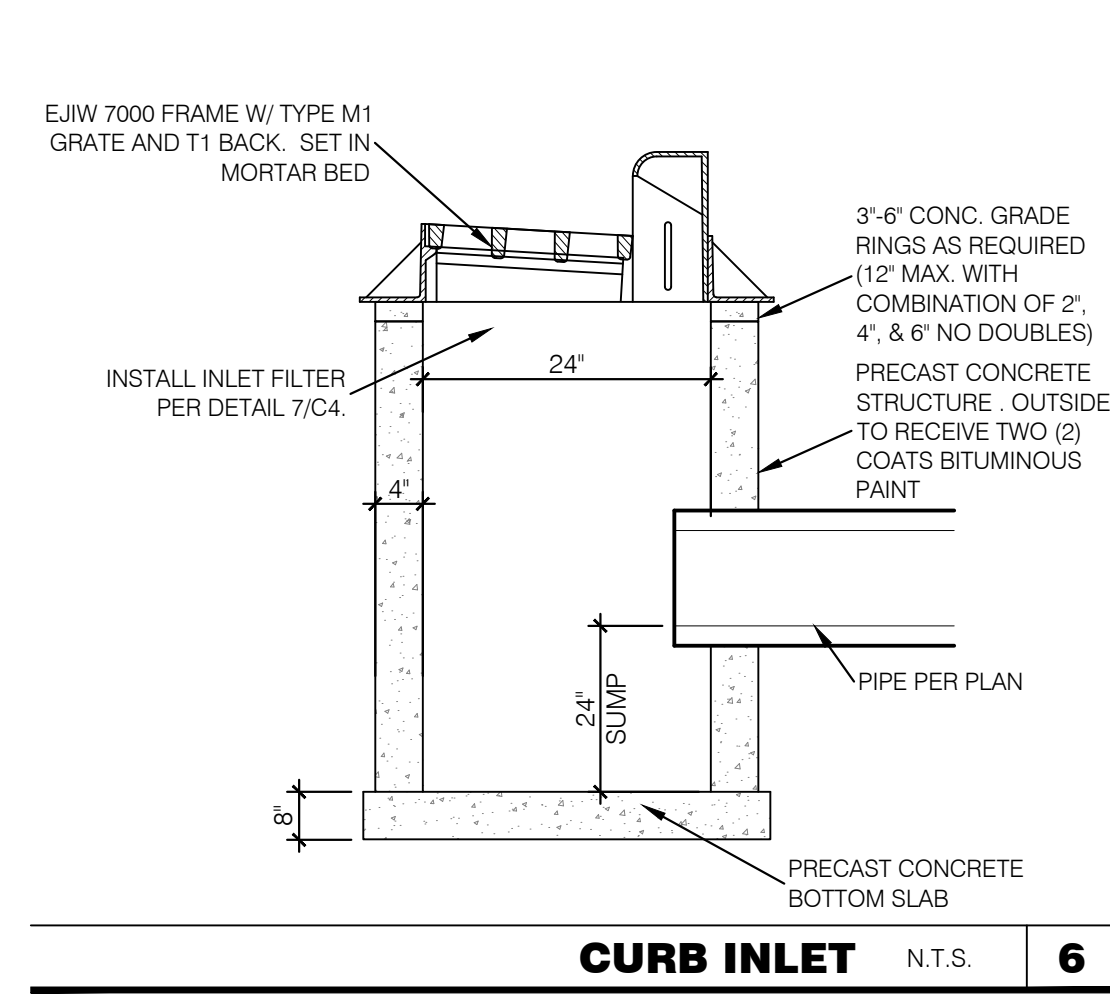
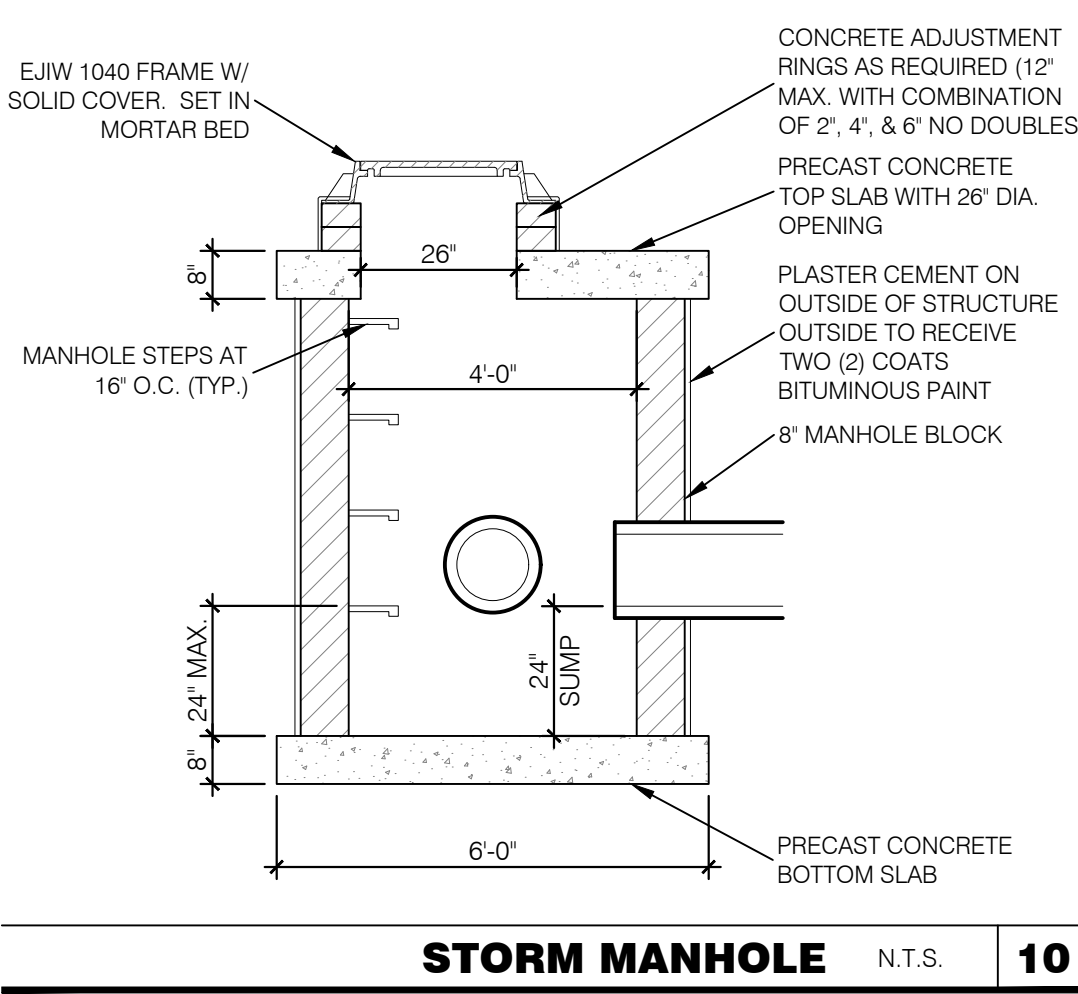
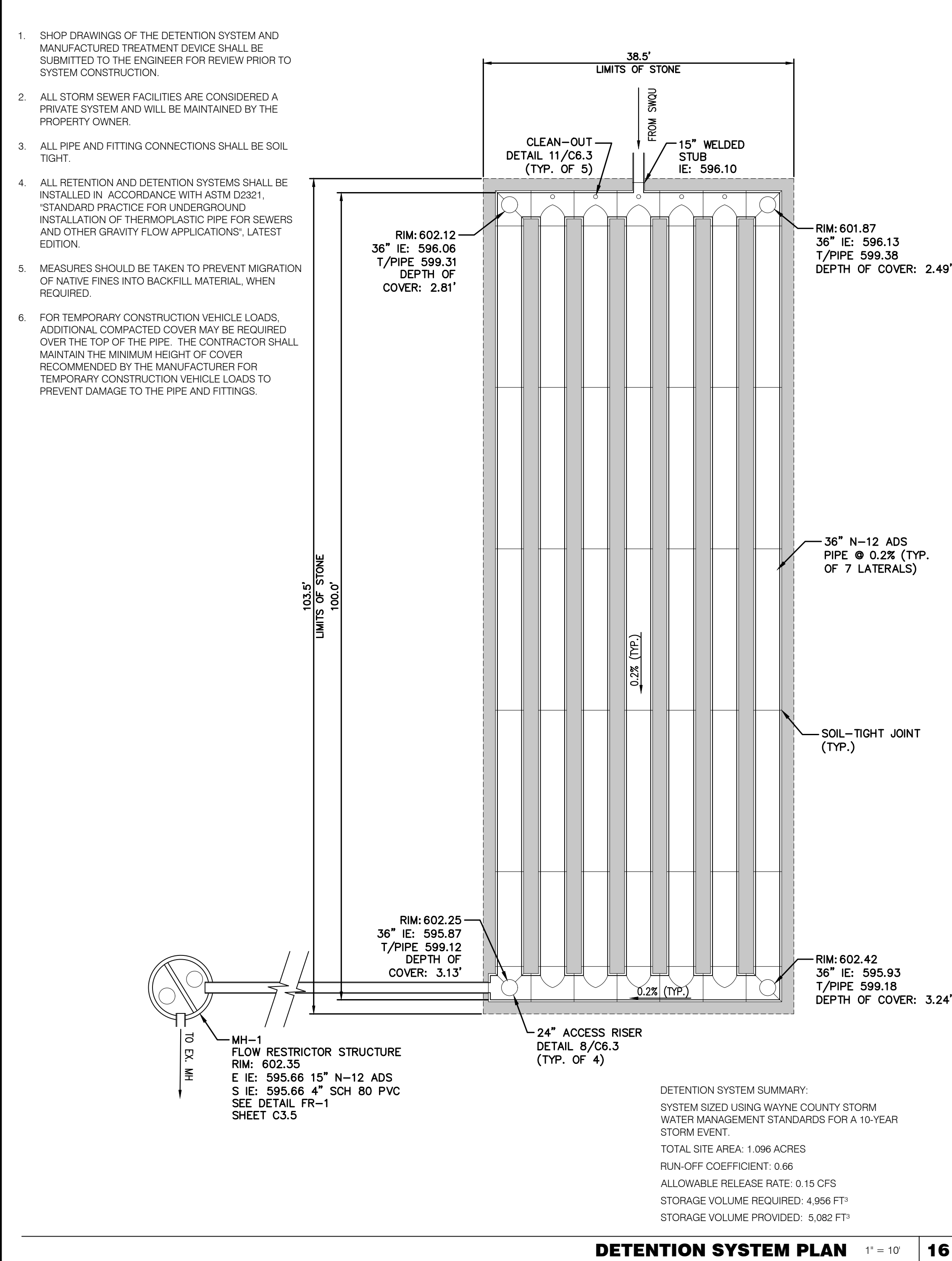
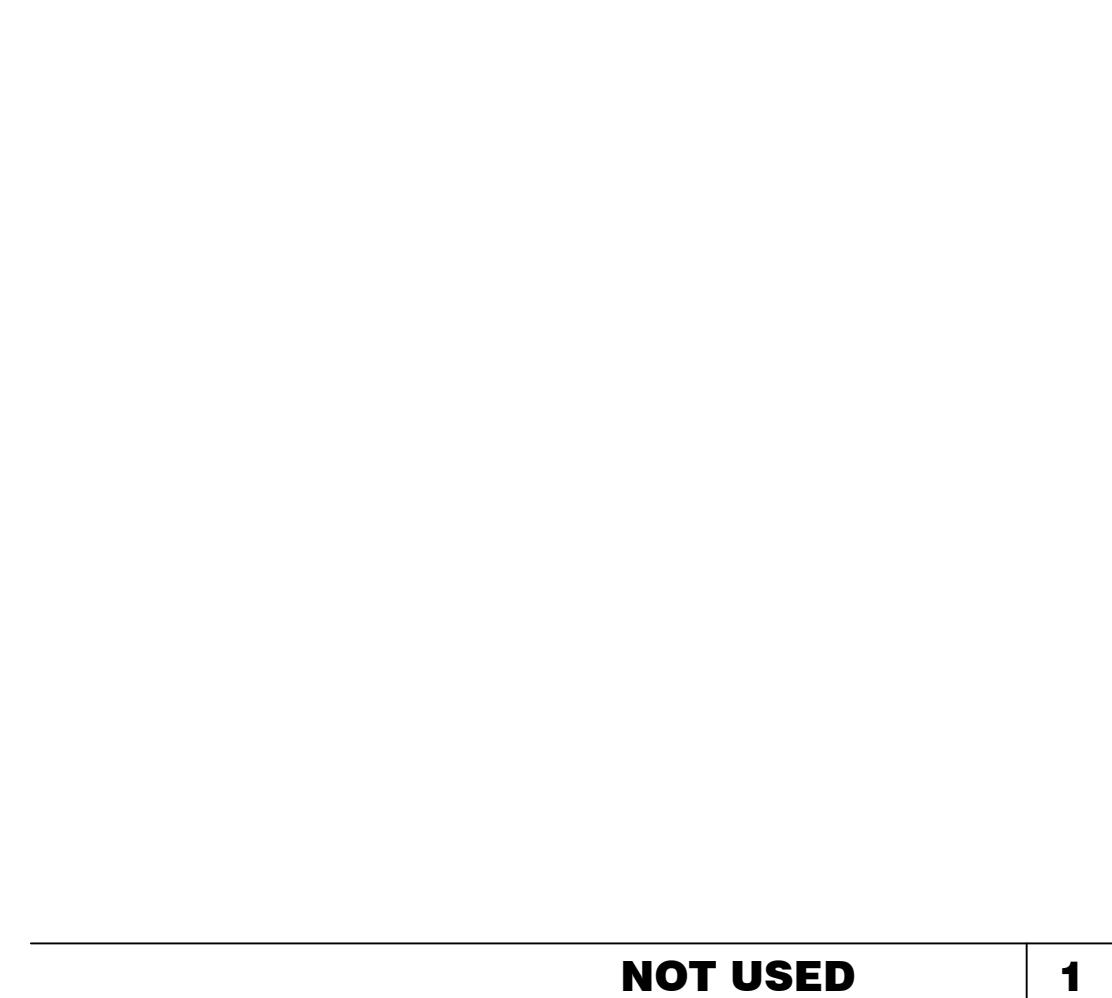
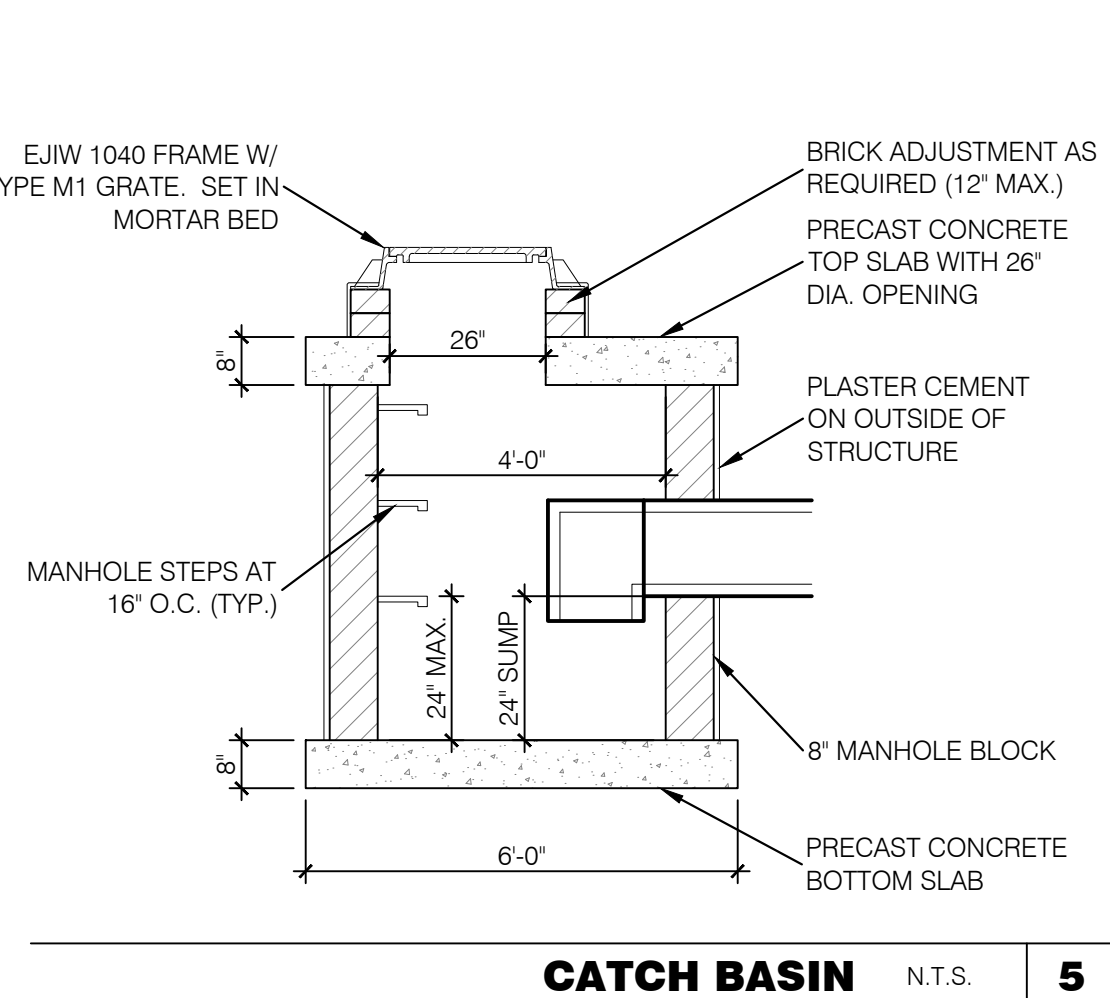
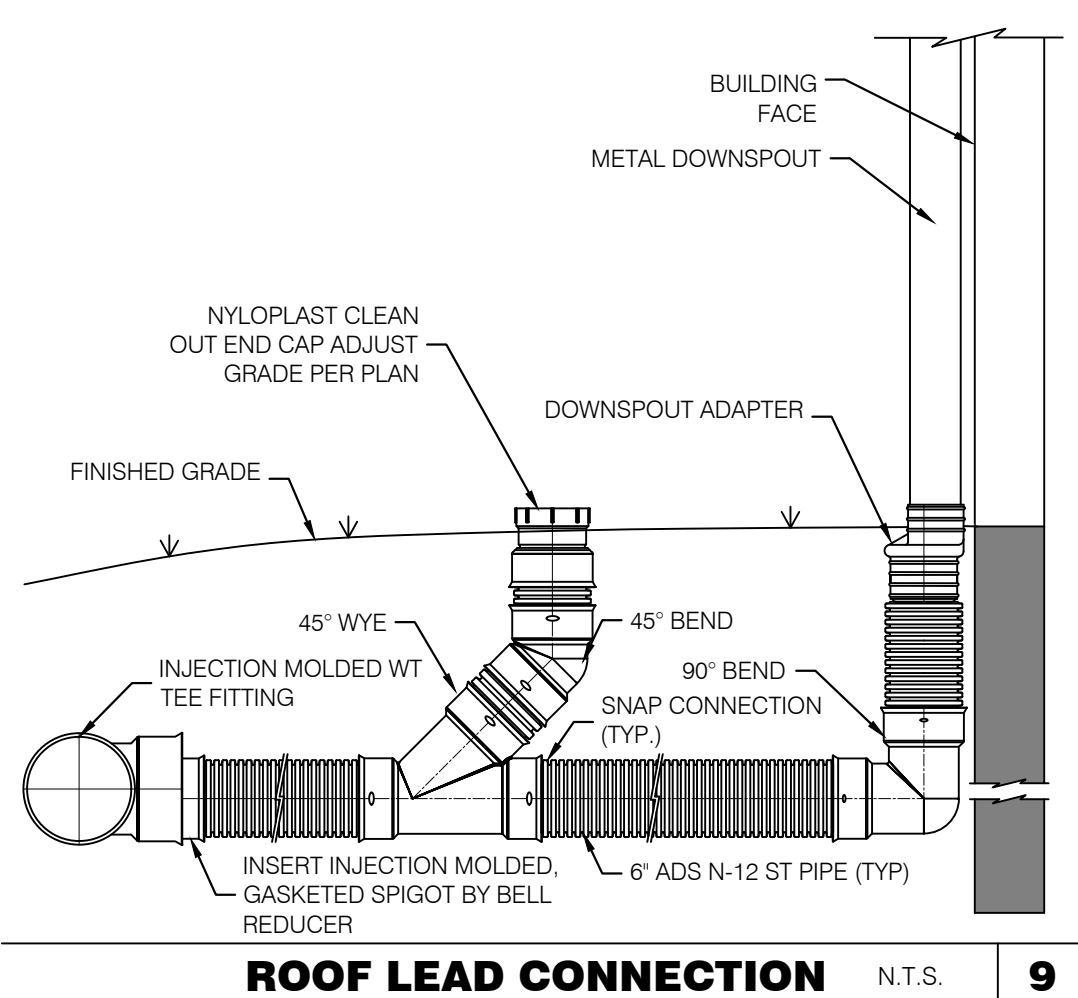
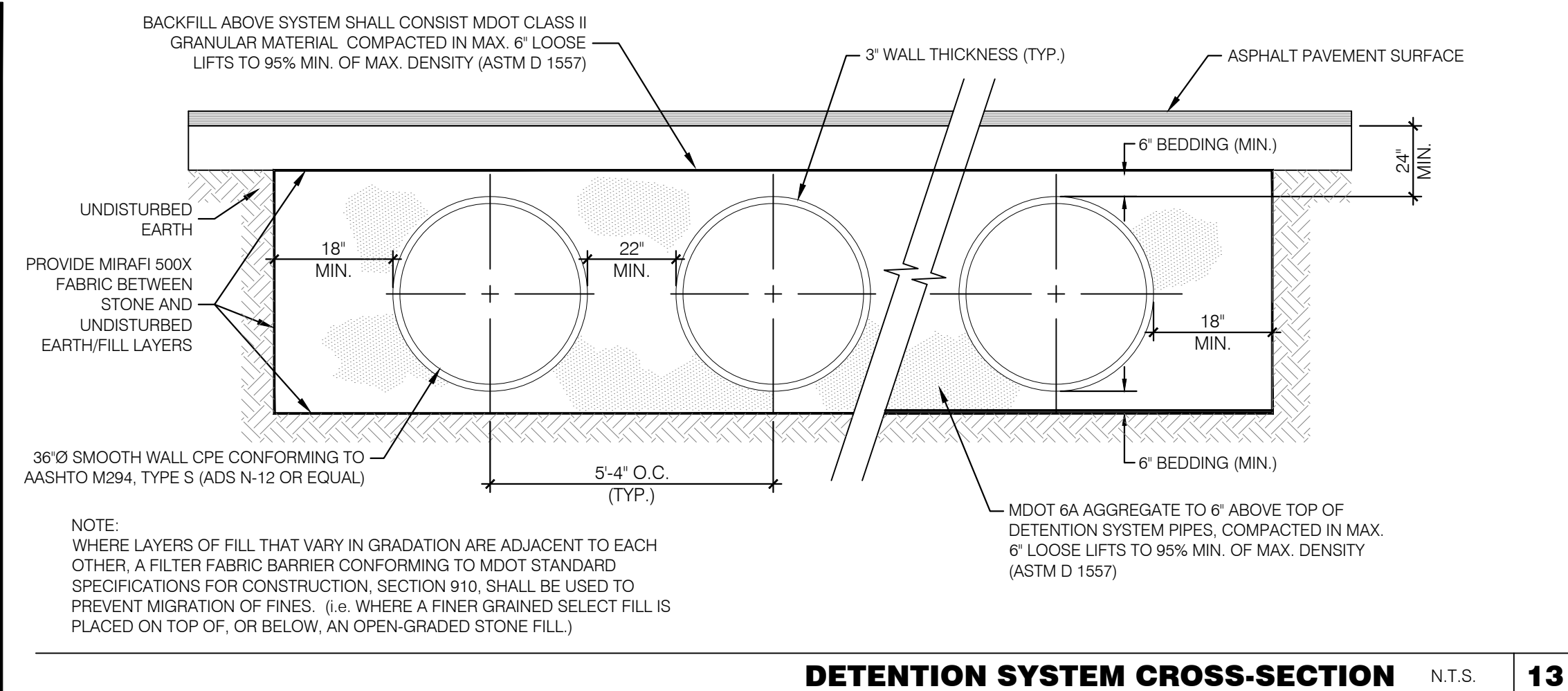
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TACO BELL
 19578 NORTH LINE ROAD
 SOUTHGATE, MI 48195



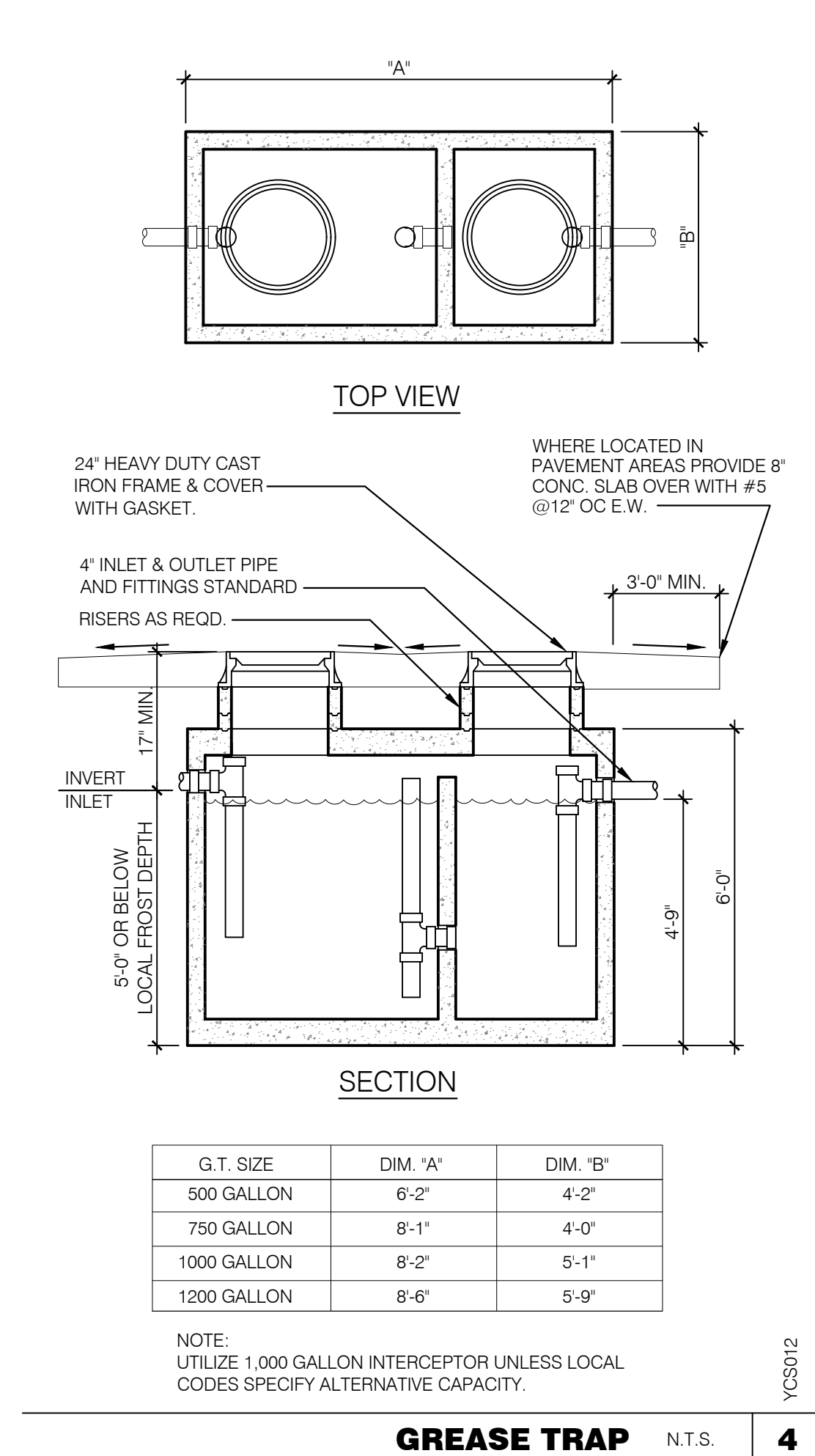
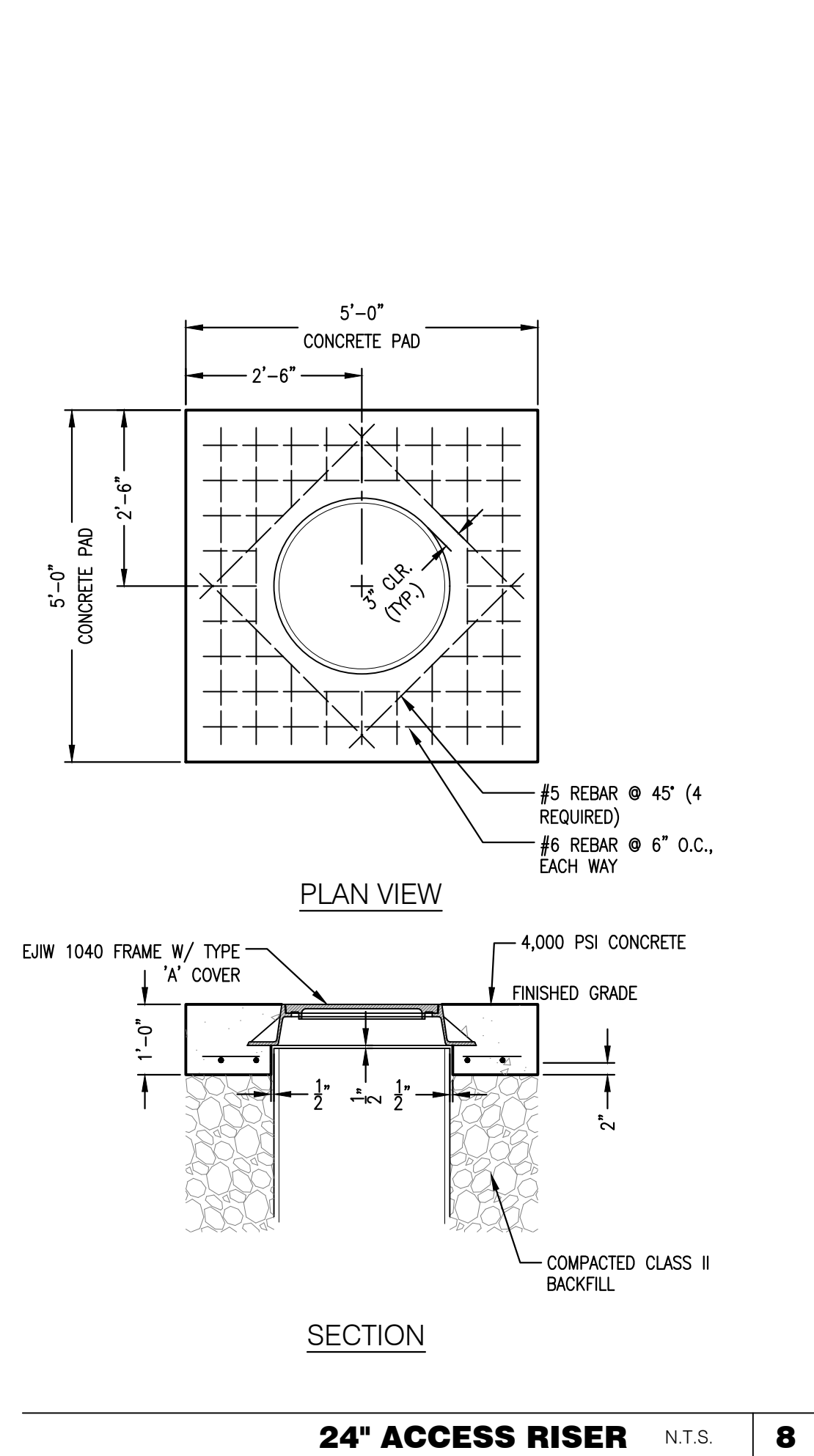
**STORM
 SEWER
 PROFILES**

C6.2



WAYNE COUNTY DPS NOTES **12**

- UNDERGROUND DETENTION SYSTEM SHALL CONFORM TO THE WAYNE COUNTY STORM ORDINANCE, STANDARD SECTION 8.3.1. SOME OF THE REQUIREMENTS ARE LISTED BELOW.
- SMOOTH-LINED CORRUGATED PLASTIC DETENTION PIPES SHALL CONFORM TO AASHTO M294, TYPE S AND HS-20 LOADING REQUIREMENTS.
- INSTALLATION OF UNDERGROUND DETENTION SYSTEM SHALL CONFORM TO THE CURRENT MDOT SPECIFICATIONS FOR THE SPECIFIC PIPE MATERIAL TO BE USED.
- PLASTIC DETENTION PIPES REQUIRE 2G, 34G, 6A, OR 21AA STONE OR GRAVEL BACKFILL TO MINIMUM 6 INCHES ABOVE TOP OF THE PIPES. THE ENTIRE BACKFILLED HDPE UNDERGROUND DETENTION SYSTEM SHALL BE ENVELOPED WITH A GEOTEXTILE FABRIC CONFORMING TO MDOT SECTION 910.
- THE MINIMUM COVER OVER PLASTIC DETENTION PIPES UNDER THE PAVEMENT INFLUENCE IS 24 INCHES TO THE BOTTOM OF ASPHALT PAVEMENT, OR 24 INCHES TO THE TOP OF CONCRETE PAVEMENT.
- THE MANUFACTURER OF THE UNDERGROUND DETENTION SYSTEM MUST CONTACT THE WAYNE COUNTY TESTING OFFICE AT (734) 595-6504 EXT. 2015 AT LEAST THREE WORKING DAYS PRIOR TO FABRICATION TO SCHEDULE INSPECTION DURING FABRICATION OF THE DETENTION PIPES AND THE MANUFACTURED TREATMENT STRUCTURE.
- A WAYNE COUNTY PERMIT ENGINEER MUST OBSERVE THE INSTALLATION OF THE UNDERGROUND DETENTION SYSTEM. CONTACT WAYNE COUNTY PERMITS OFFICE AT (734) 595-6504 X 2009.



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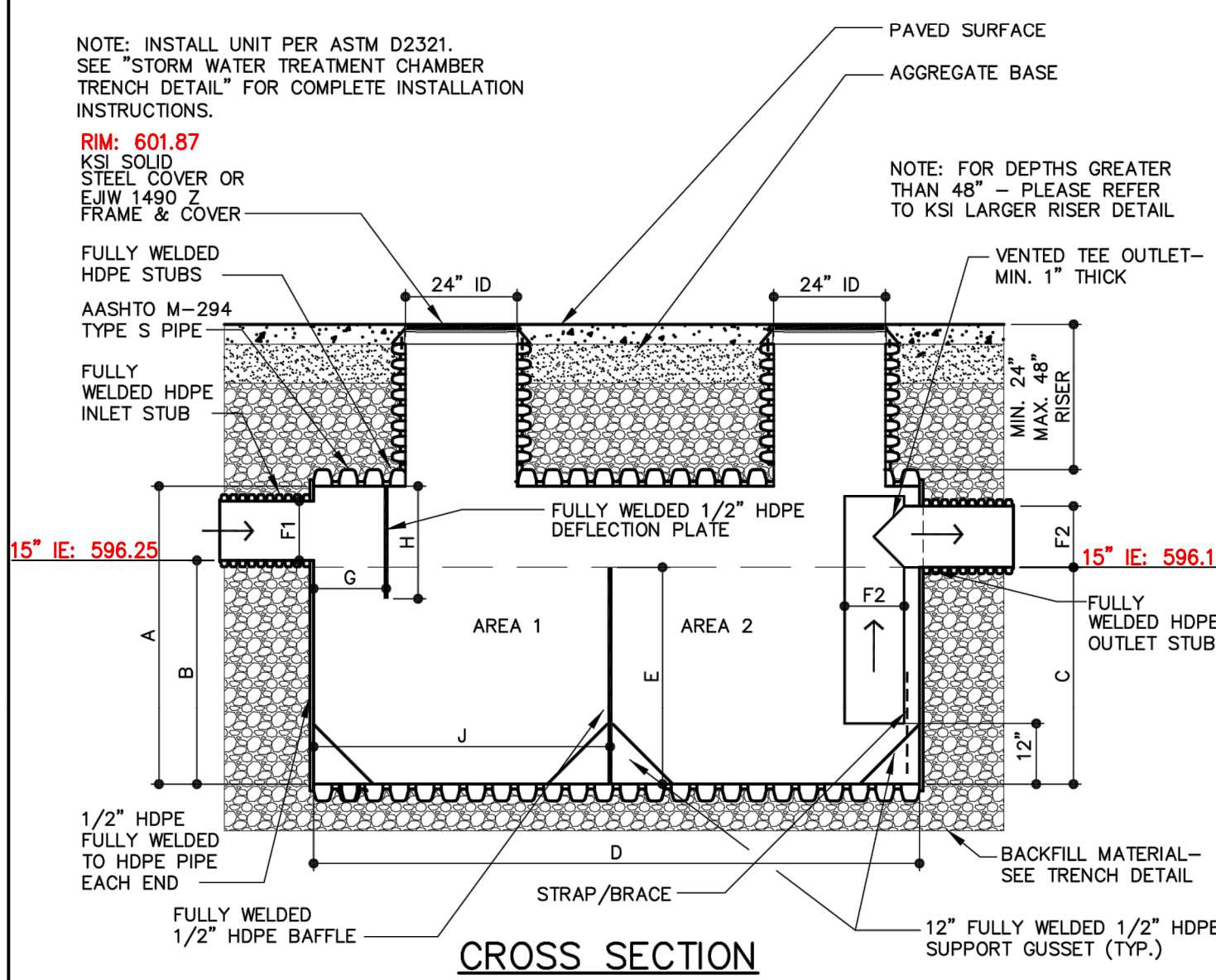
UTILITY DETAILS
C6.3

ISSUE DATE: 06.19.2018
BUILDING TYPE: EXPLORER LITE
PLAN VERSION: MEDIUM 40
SITE NUMBER: 312529
ENTITY NUMBER: 445209

UTILIZE 1,000 GALLON INTERCEPTOR UNLESS LOCAL CODES SPECIFY ALTERNATIVE CAPACITY.

YCS012

STORM WATER TREATMENT CHAMBER KSI SERIES 750 HDPE CHAMBER



STORM WATER TREATMENT CHAMBER DIMENSIONS AND CAPACITIES

MODEL NO.	A	B	C	D	E	F1	F2	G	H	J	AREA 1	AREA 2
750-48-15	48"	30"	29"	113"	29"	15"	15"	12"	21"	56"	37.1 CF	59 CF

NOTE: THE DIMENSIONS FOR THIS UNIT ARE STANDARD. ANY DEVIATIONS SHALL REQUIRE ADDITIONAL WAYNE COUNTY APPROVAL.

WAYNE COUNTY DPS JURISDICTION ONLY

DESIGN BY: AG / RK REV: 3-19-14 1 OF 1
 DATE: 10-10-08
 MANUF. APPROVAL BY: NTS SCALE: NTS SHEET NO.
 DRAWING NO. SERIES 750 SWTC v3.19.14

WAYNE COUNTY DPS PROJECT STORM WATER TREATMENT CHAMBER INSTALLATION AND MAINTENANCE GUIDELINES

INSTALLATION GUIDELINES

- EXCAVATE AREA FOR KSI SWTC AND PREPARE TRENCH BOTTOM PER ASTM D2321, SECTIONS 6 & 7.
- THE KSI SWTC SHALL BE INSTALLED ON A BED OF NO LESS THAN 12" MDOT 6A OR 34G BEDDING MATERIALS COMPACTED TO 95% PROCTOR DENSITY. COMPACTED TO 95% (90% MIN. FOR MDOT 6A MATERIAL) OF THE BACKFILL MATERIAL'S MAXIMUM WEIGHT AT A MOISTURE CONTENT NOT GREATER THAN THE OPTIMUM.
- INSTALL KSI SWTC UNIT, HIGH FLOW BYPASS LINE (IF APPLICABLE), DIVERSION STRUCTURE AND EXITING STRUCTURE AT ELEVATIONS INDICATED ON SITE PLAN. COUPLE INLET AND OUTLET STUBS WITH APPROPRIATE PIPE COUPLINGS, FERNCOS OR HDPE SPLIT COUPLERS TO CONVEYANCE PIPE.
- BACKFILL UNIT WITH MDOT 6A OR 34G MATERIALS PER ASTM D2321. BACKFILL SHALL BE COMPACTED TO 95% PROCTOR DENSITY.
- THE HDPE ACCESS RISERS SHALL BE FIELD CUT TO FINISH GRADE BY THE CONTRACTOR. SEE RISER INSTALLATION OPTIONS PAGE.
- KSI RECOMMENDS FILLING THE UNIT WITH WATER UPON COMPLETION OF INSTALLATION UP TO THE BAFFLE HEIGHT.

MAINTENANCE GUIDELINES

- ALL STORM WATER TREATMENT CHAMBERS WILL REQUIRE PERIODIC MAINTENANCE DEPENDING ON SPECIFIC SITE CONDITIONS.
- KSI RECOMMENDS CLEANING THE SWTC QUARTERLY AND AFTER HEAVY RAIN STORMS. SEDIMENT IS EASIER TO REMOVE WHEN IT IS REMOVED ON A REGULAR BASIS.
- DISPOSAL OF MATERIAL FROM THE KSI SWTC ARE SIMILAR TO THAT OF ANY OTHER BEST MANAGEMENT PRACTICES (BMP). LOCAL GUIDELINES SHOULD BE CONSULTED PRIOR TO DISPOSAL OF THE SWTC CONTENTS. PETROLEUM WASTE PRODUCTS SHOULD BE REMOVED BY A LICENSED WASTE MANAGEMENT COMPANY.
- IF A HYDROCARBON REMOVAL SYSTEM WAS INSTALLED - REPLACE IT WHEN IT TURNS BLACK. UNIT CAN BE DISPOSED OF VIA NORMAL REFUSE REMOVAL. SPENT UNIT DOES NOT LEACH CAPTURED CONTAMINATES.
- AFTER CLEANING THE UNIT - KSI RECOMMENDS REFILLING THE UNIT WITH WATER

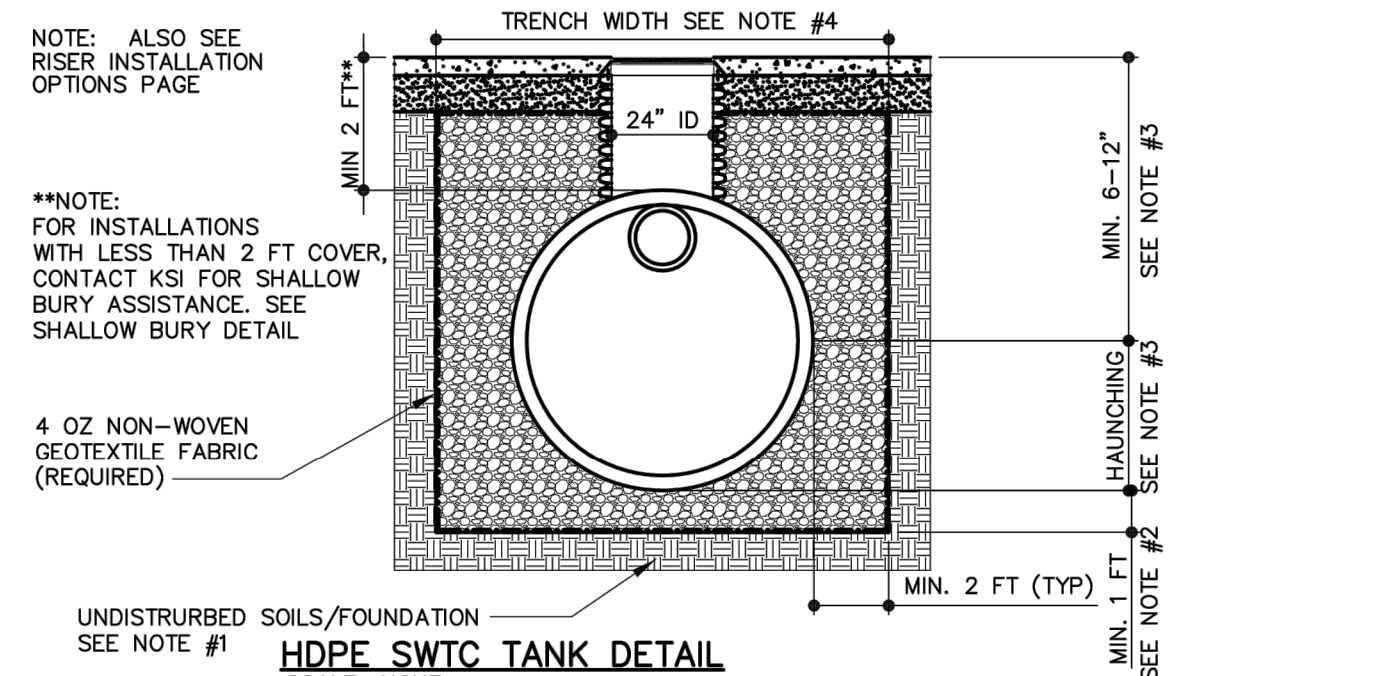
WAYNE COUNTY DPS JURISDICTION ONLY

DESIGN BY: AG / RK REV: 3-19-14 1 OF 1
 DATE: 4-17-08
 MANUF. APPROVAL BY: NTS SCALE: NTS SHEET NO.
 DRAWING NO. SWTC INSTALL & MAINT.

WAYNE COUNTY DPS PROJECT STORM WATER TREATMENT CHAMBER TRENCH DETAIL

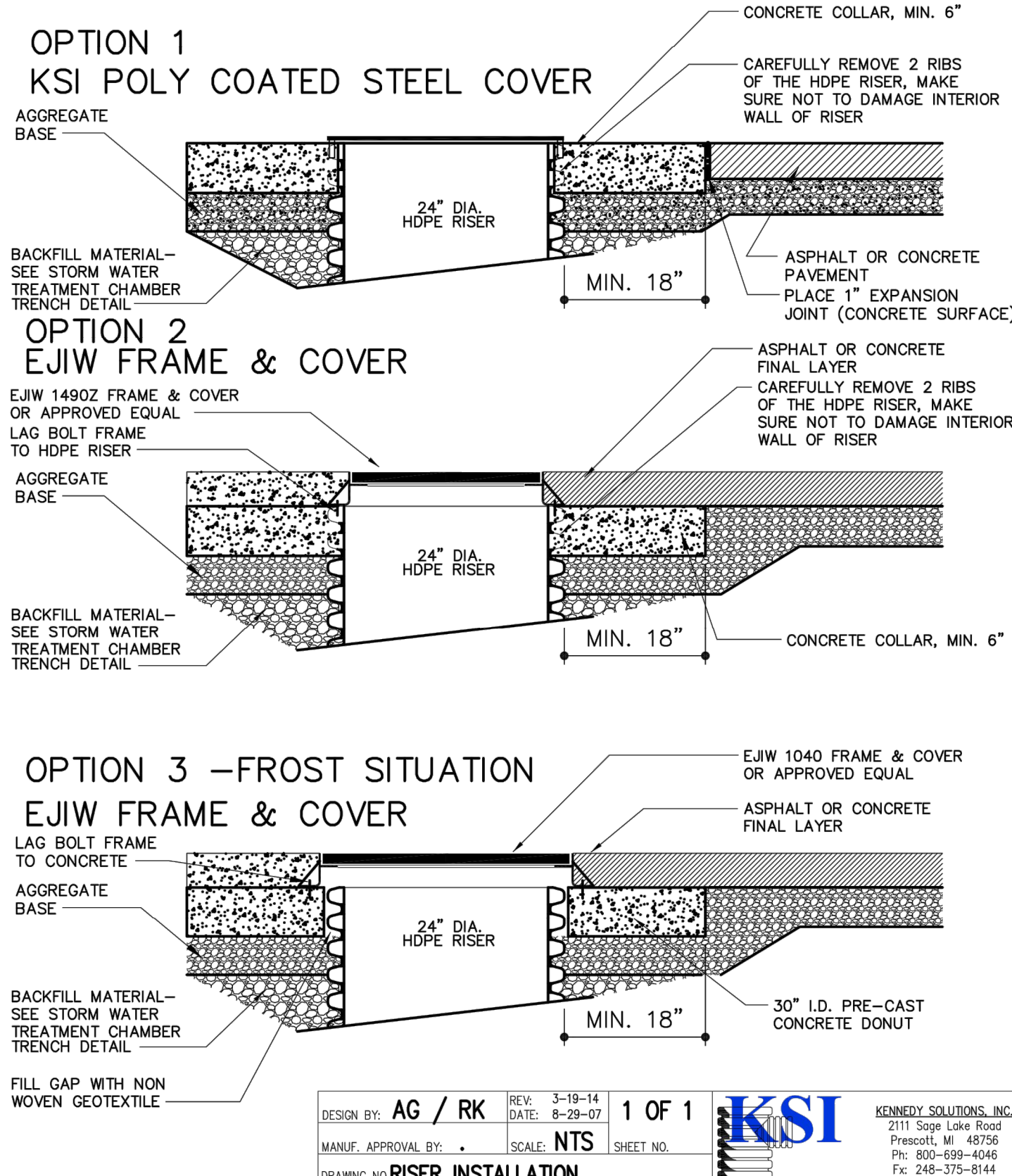
- NOTES:
- FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH A FOUNDATION OF MDOT 6A OR 34G MATERIAL AS DEFINED IN ASTM D2321, LATEST EDITION; AS AN ALTERNATIVE TRENCH BOTTOM MAY BE STABILIZED USING A WOVEN GEOTEXTILE FABRIC AND OR A GEOGRID.
 - BEDDING: SUITABLE MATERIAL SHALL BE MDOT 6A OR 34G AGGREGATE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION. UNLESS OTHERWISE SPECIFIED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 12" FOR 36"-120" DIA. SWTC.
 - HAUNCHING AND INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE MDOT 6A OR 34G AGGREGATE AND INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION, MAXIMUM TEN (10") LIFTS.
 - UNLESS OTHERWISE SPECIFIED BY THE ENGINEER, MIN. TRENCH WIDTHS ARE AS FOLLOWS
- | NOMINAL I.D. | NOMINAL O.D. | MINIMUM RECOMM. TRENCH WIDTH |
|--------------|--------------|------------------------------|
| 36" | 42" | 90" |
| 48" | 54" | 102" |
| 60" | 66" | 114" |
| 72" | 80.5" | 129" |
| 96" | 105.9" | 154" |
| 120" | 131.3" | 190" |

- MINIMUM COVER: MINIMUM RECOMMENDED COVER FOR VARIOUS LIVE LOADING CONDITIONS ARE AS SUMMARIZED IN THE FOLLOWING TABLE. UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE TAKEN FROM THE TOP OF THE SWTC TANK TO THE GROUND SURFACE.
- | SURFACE LIVE LOAD | MINIMUM REQUIRED COVER FOR WAYNE COUNTY (ALL SIZES) |
|-------------------------------|---|
| HS-25/H25 (FLEXIBLE PAVEMENT) | MIN. 24" AS MEASURED FROM THE BOTTOM OF THE FLEXIBLE PAVEMENT |
| HS-25/H25 (RIGID PAVEMENT) | MIN. 24" AS MEASURED FROM THE TOP OF THE RIGID PAVEMENT |
| E80 RAILWAY | 24" |
| HEAVY CONSTRUCTION | 48" |



DESIGN BY: AG / RK REV: 3-19-14 1 OF 1
 DATE: 4-13-09
 MANUF. APPROVAL BY: NTS SCALE: NTS SHEET NO.
 DRAWING NO. SWTC INSTALLATION DETAIL

WAYNE COUNTY DPS PROJECT KSI RISER INSTALLATION OPTIONS FOR PAVED SURFACE APPLICATIONS



DESIGN BY: AG / RK REV: 3-19-14 1 OF 1
 DATE: 8-29-07
 MANUF. APPROVAL BY: NTS SCALE: NTS SHEET NO.
 DRAWING NO. RISER INSTALLATION

ELEC. ROUTE/MH PER DTE	08.06.18
ADA PWMT TYPE	08.13.18

ISSUE DATE:	06.19.2018
BUILDING TYPE:	EXPLORER LITE
PLAN VERSION:	MEDIUM 40
SITE NUMBER:	312529
ENTITY NUMBER:	445209

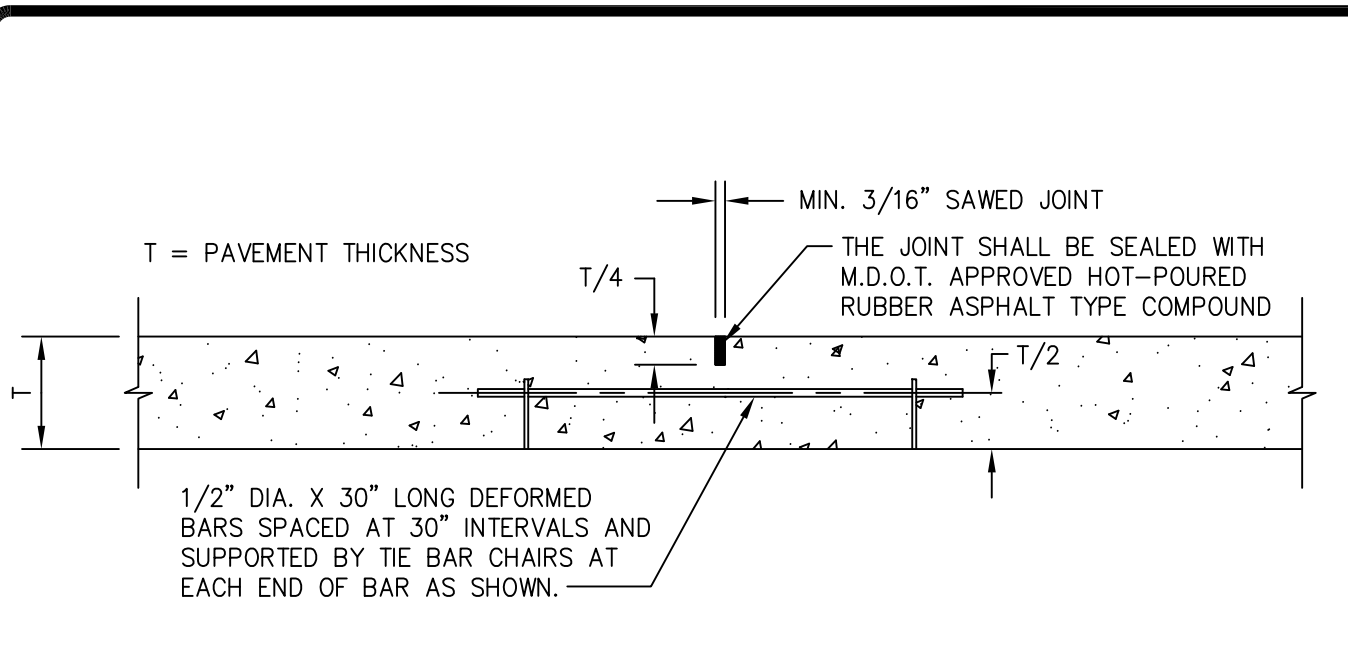
TACO BELL
 19578 NORTH LINE ROAD
 SOUTHGATE, MI 48195



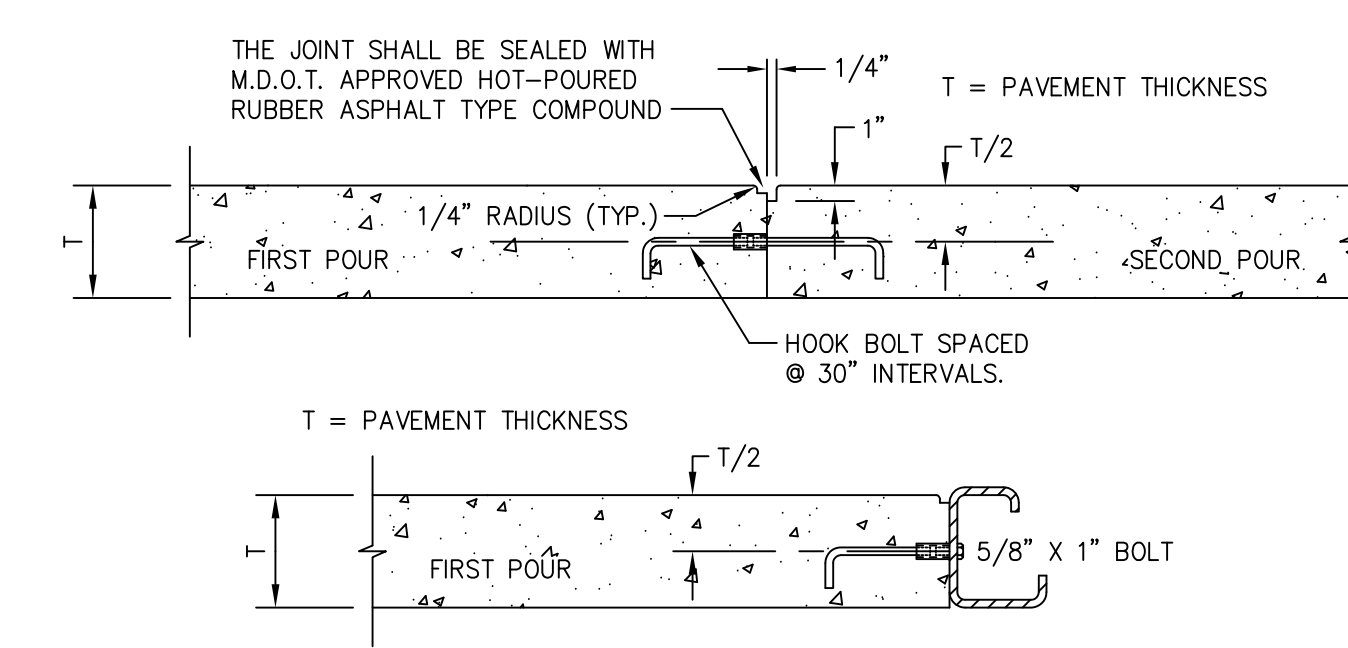
STORM WATER QUALITY UNIT DETAILS

C6.4

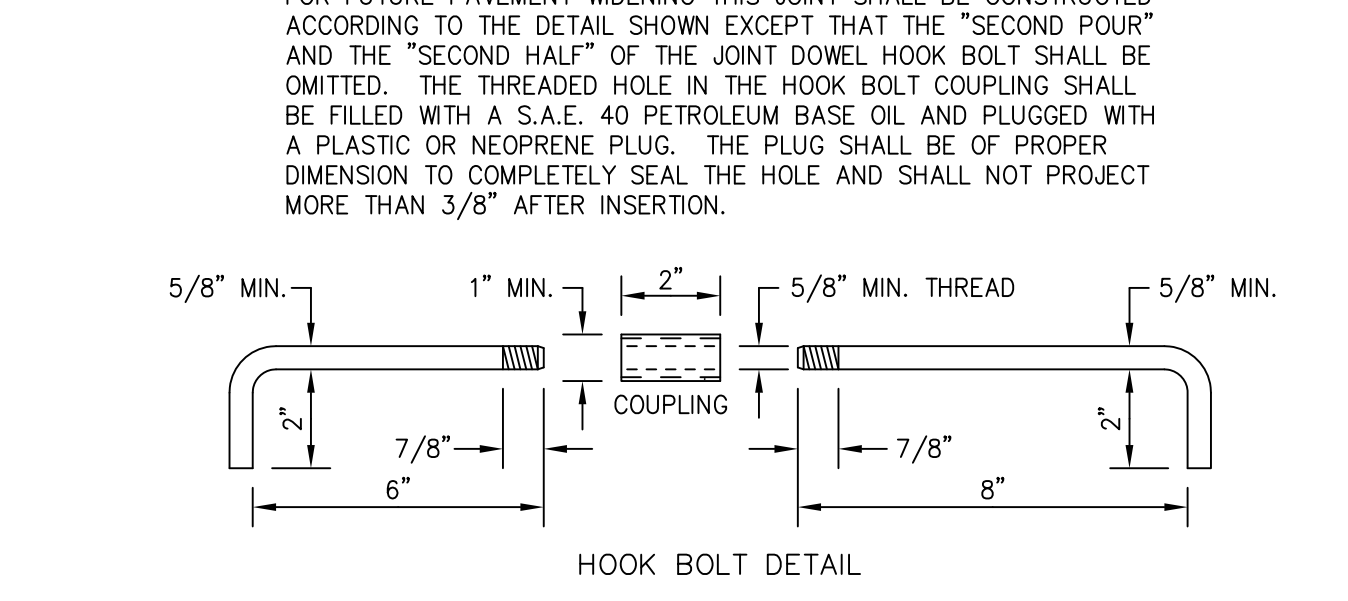
THE MANUFACTURER OF THE MANUFACTURED TREATMENT STRUCTURE MUST CONTACT THE WAYNE COUNTY TESTING OFFICE AT (734) 595-6504 EXT. 2015 AT LEAST THREE WORKING DAYS PRIOR TO FABRICATION TO SCHEDULE INSPECTION DURING FABRICATION.



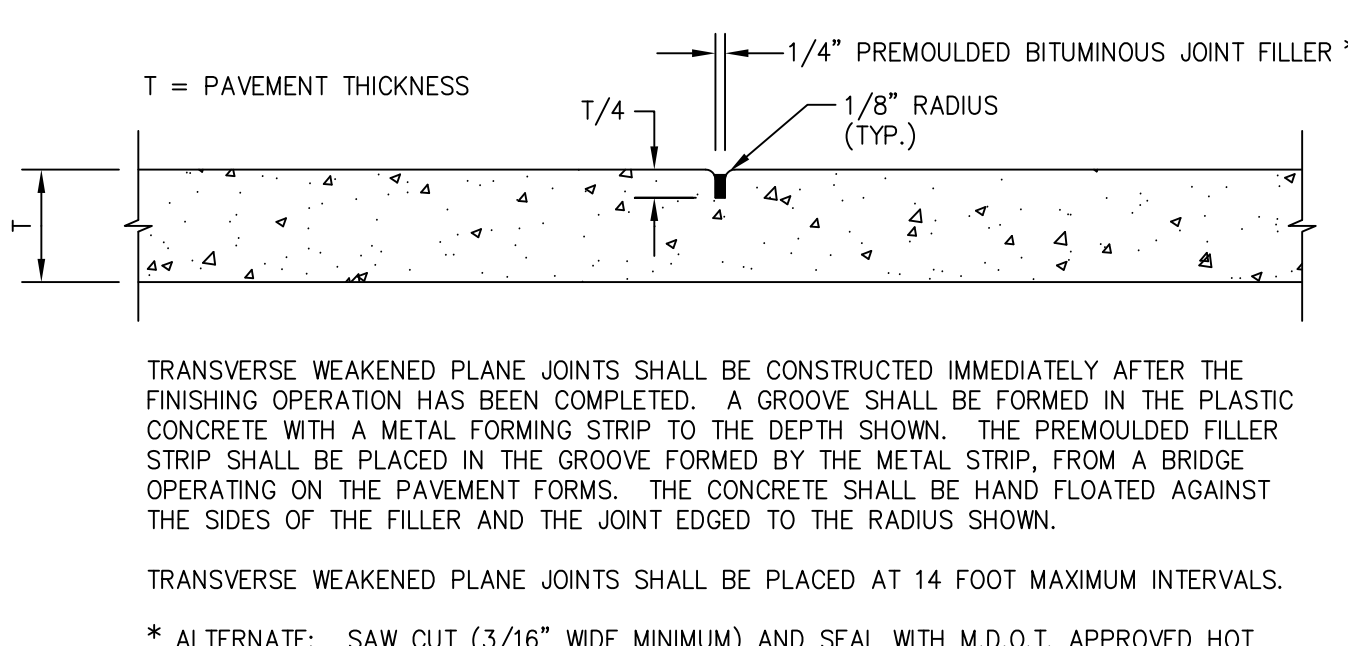
LONGITUDINAL LANE TIE JOINT "D"
N.T.S.



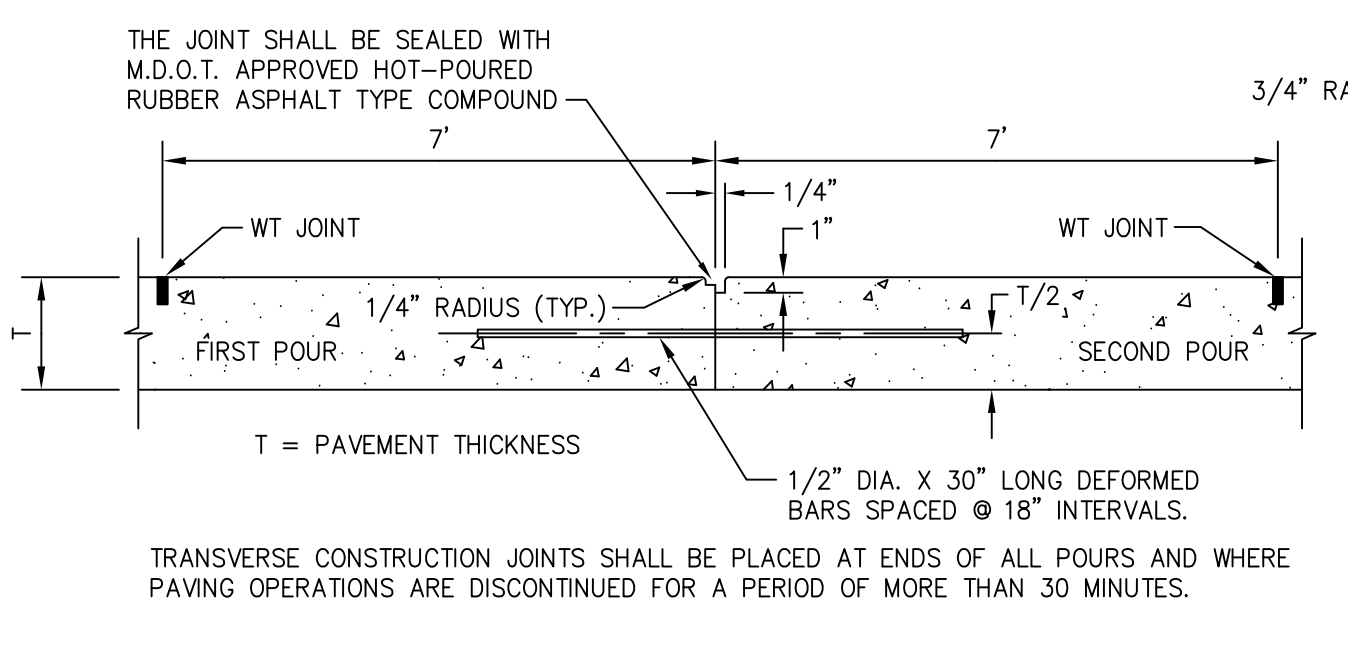
THICKENED EDGE "WT" JOINT DETAIL
N.T.S.



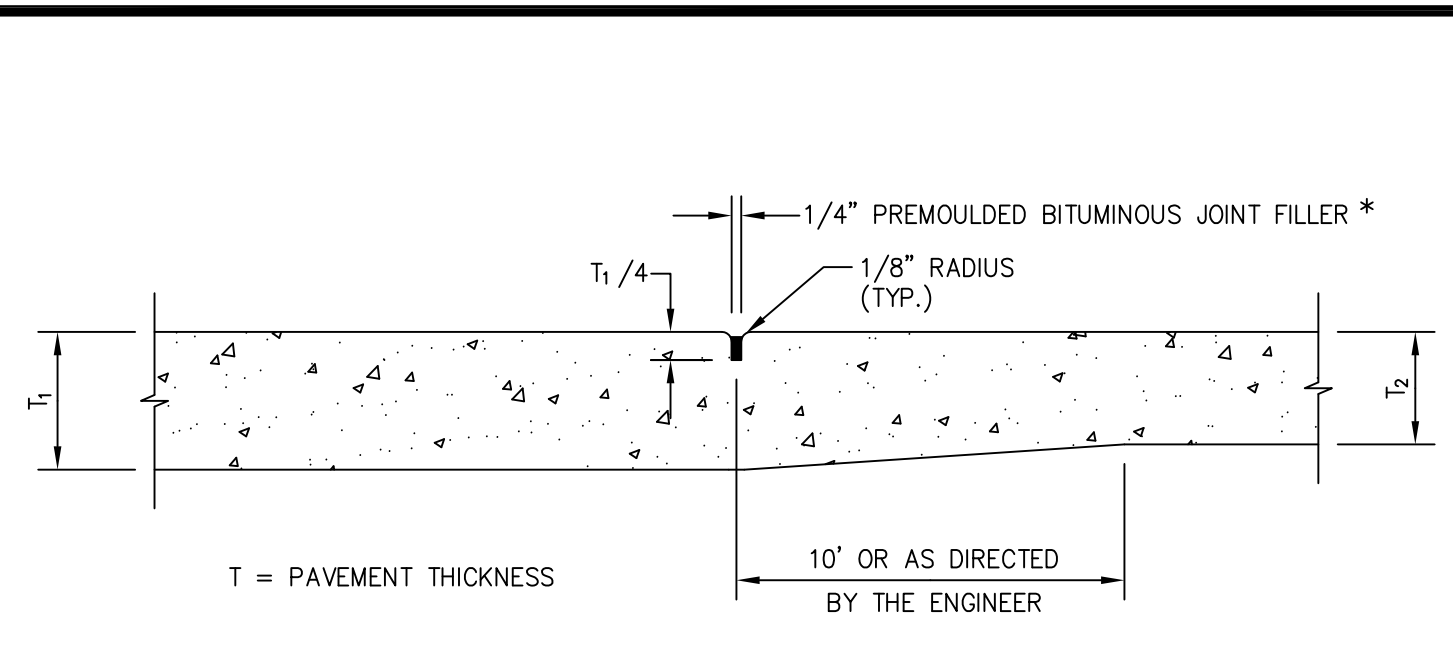
LONGITUDINAL BULKHEAD CONSTRUCTION JOINT "B"
N.T.S.



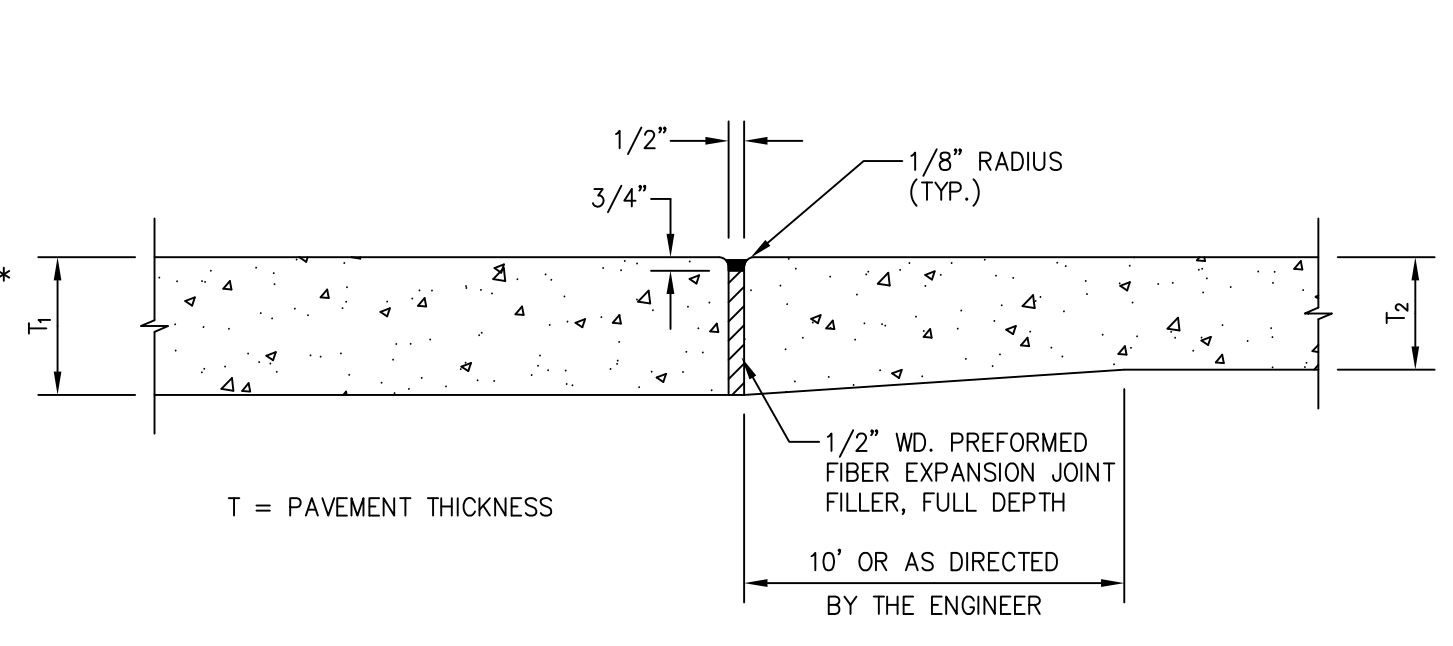
TRANSVERSE WEAKENED PLANE JOINT "WT"
N.T.S.



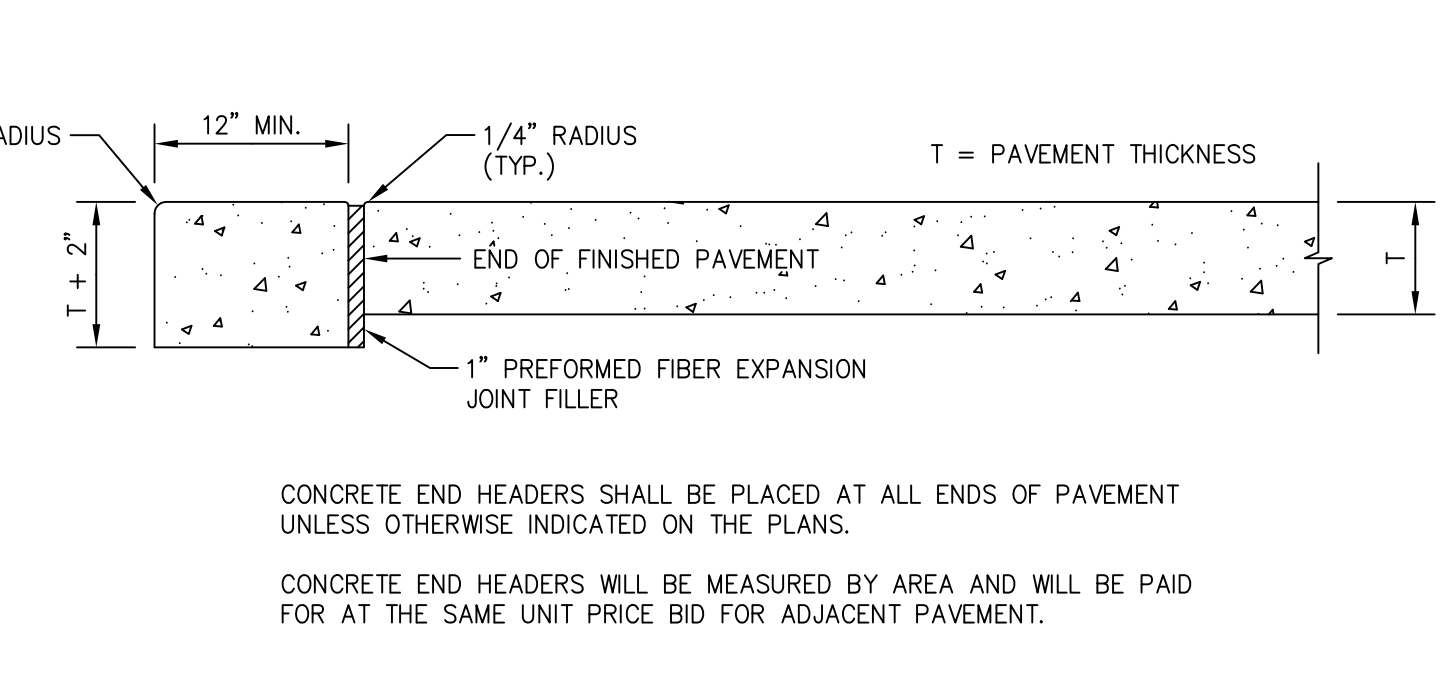
TRANSVERSE CONSTRUCTION JOINT
N.T.S.



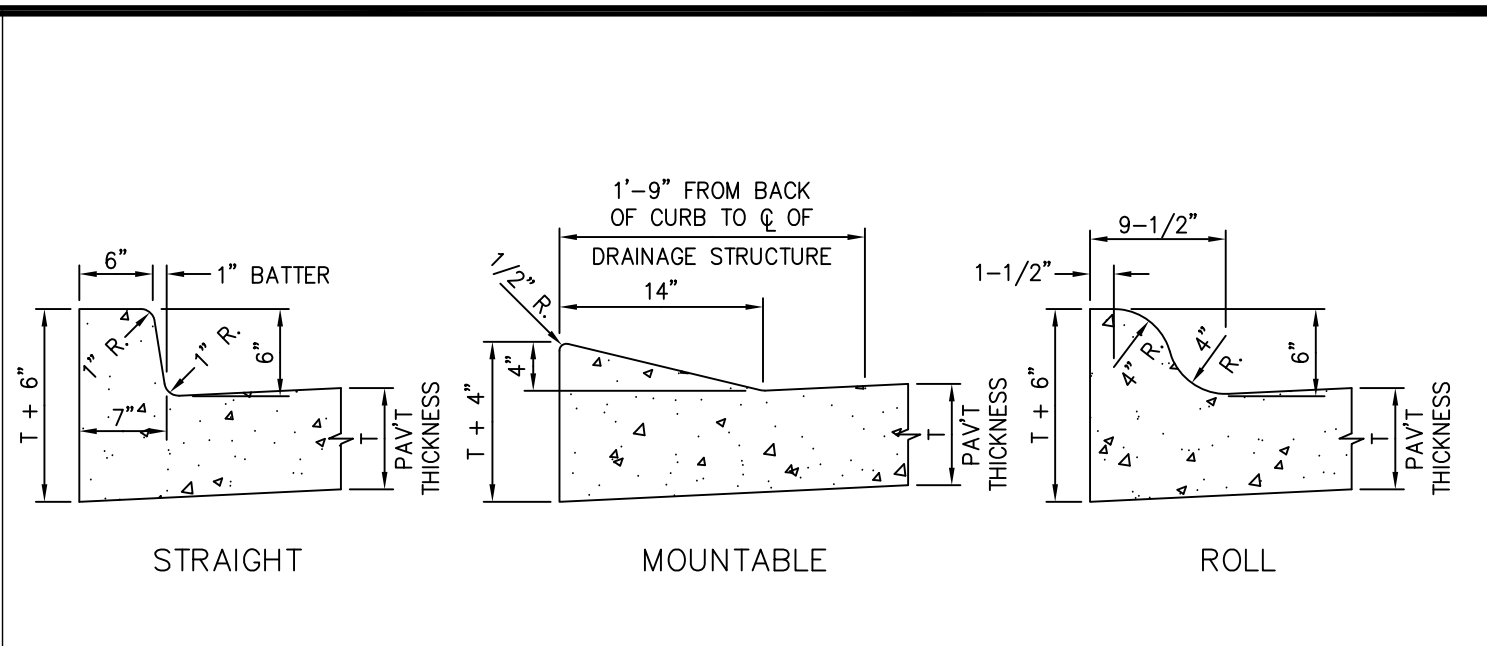
THICKENED EDGE EXPANSION JOINT DETAIL 1
N.T.S.



THICKENED EDGE EXPANSION JOINT DETAIL 2
N.T.S.

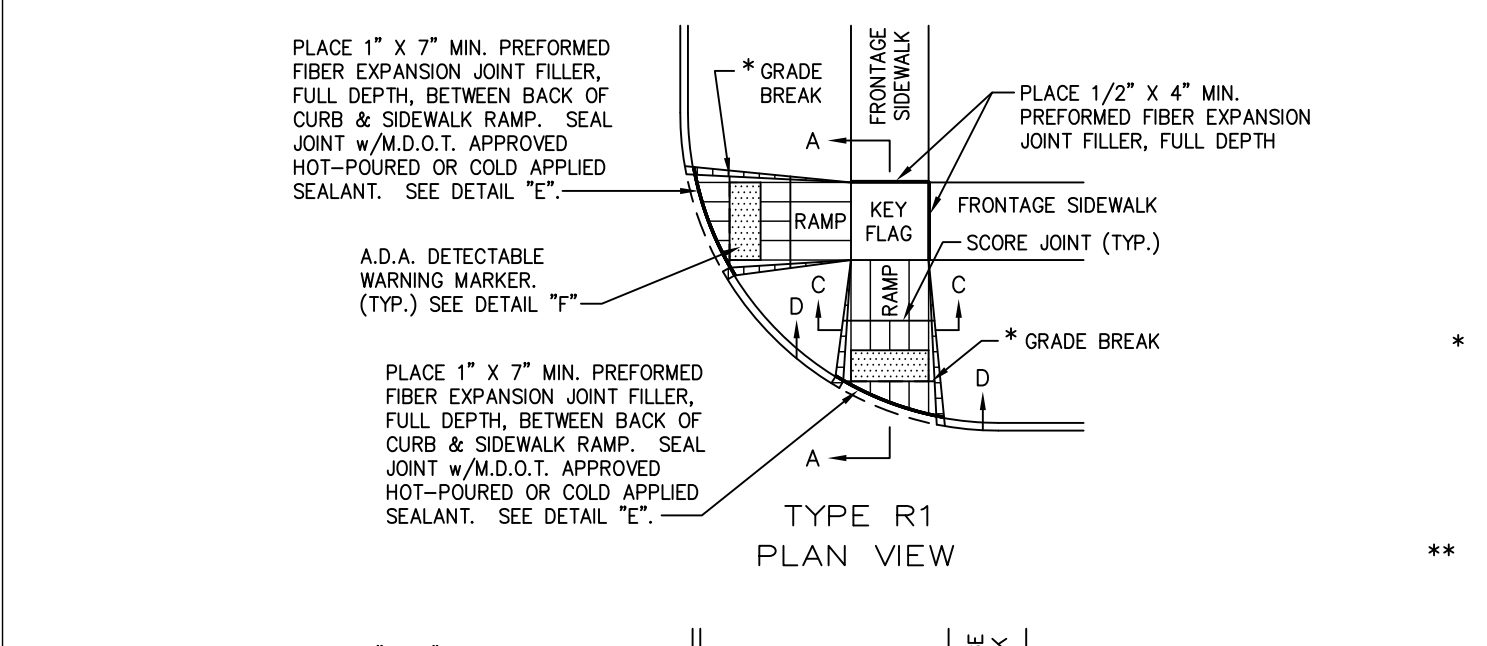


CONCRETE END HEADER
N.T.S.

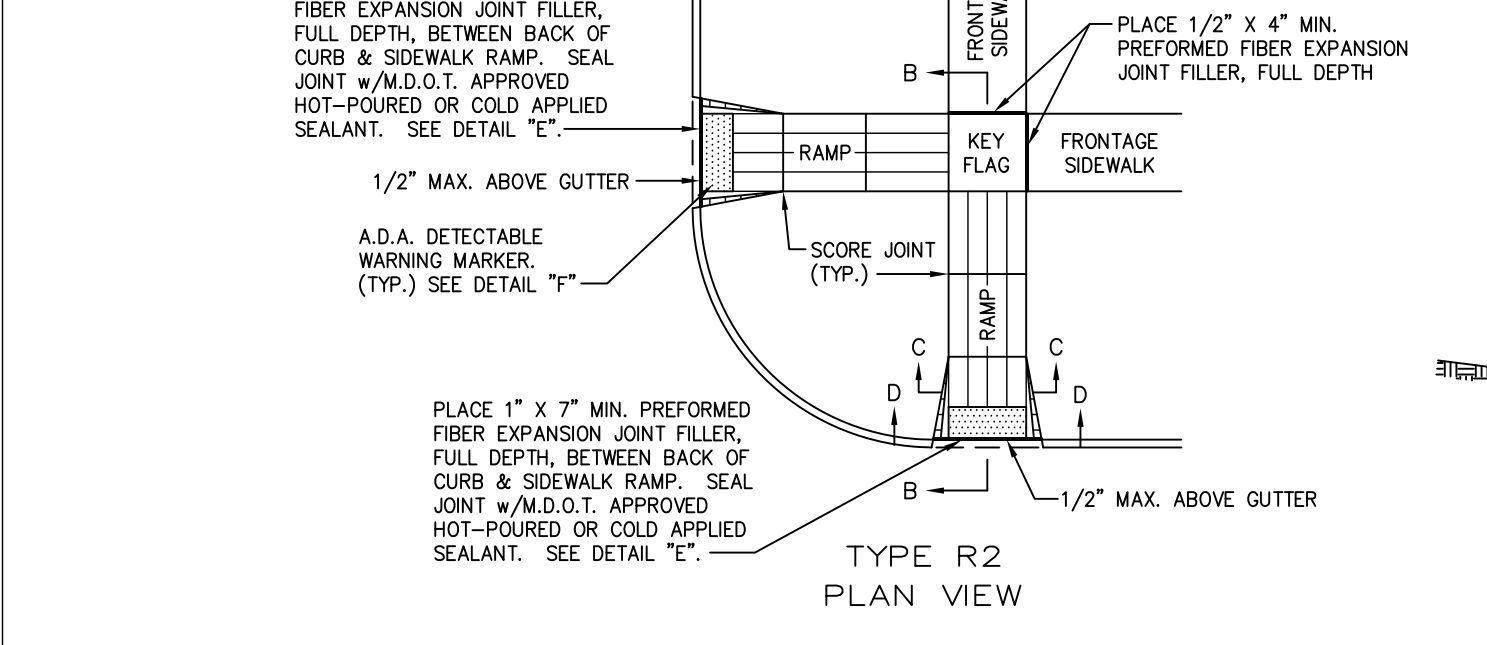


INTEGRAL CURB
N.T.S.

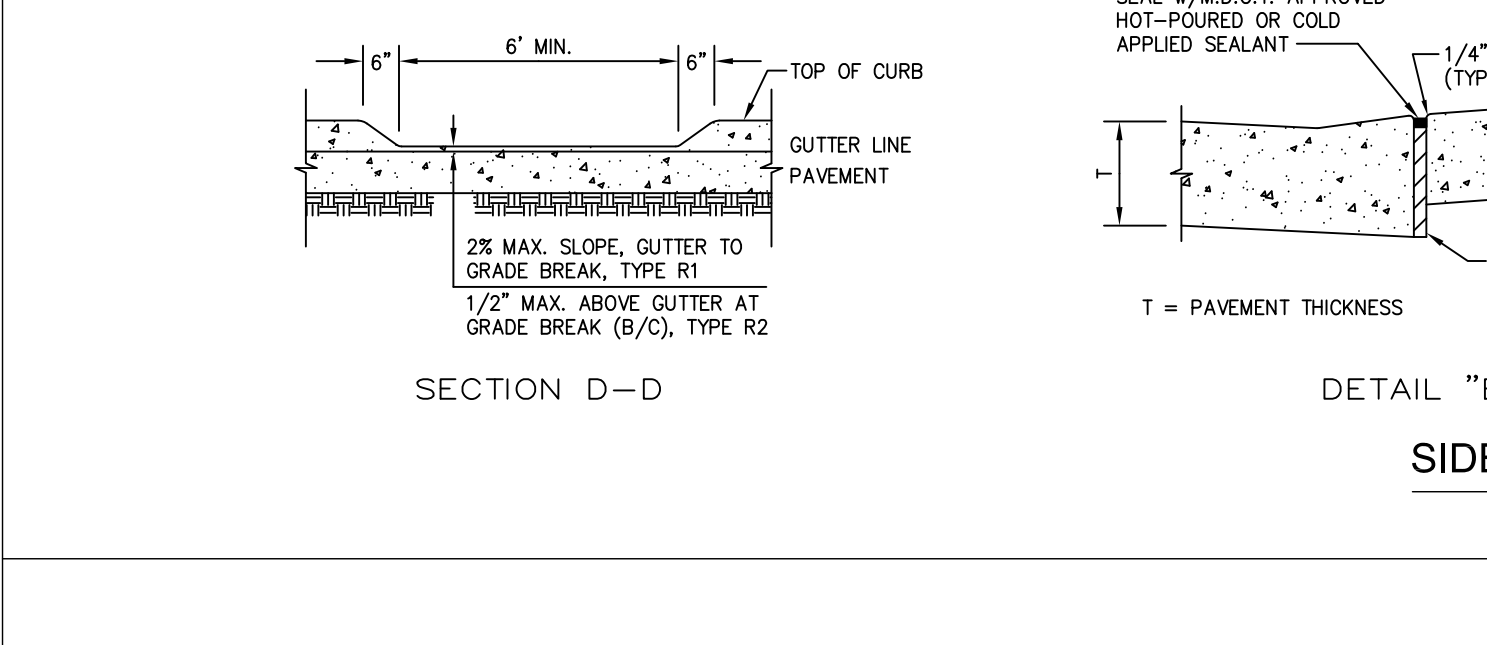
THE TRANSVERSE EXPANSION JOINT AND WEAKENED PLANE JOINT IN THE PAVEMENT SHALL EXTEND ENTIRELY THROUGH THE INTEGRAL CURB AND SHALL BE OF THE SAME THICKNESS AND KIND AS PROVIDED FOR THE PAVEMENT. THE JOINT MATERIAL SHALL BE PRECUT SO AS TO CONFORM TO THE GEOMETRIC SHAPE AND CROSS SECTION AREA OF THE CURB AND SHALL BE PLACED IN CONTACT WITH THE FILLER MATERIAL IN THE PAVEMENT. STRAIGHT CURB SHALL BE USED AT ALL PRIMARY ROAD INTERSECTIONS. FACE FORMS SHALL BE USED TO FORM STRAIGHT CURB. STEEL TEMPLATE SHALL BE USED TO FORM THE ROLL CURB.



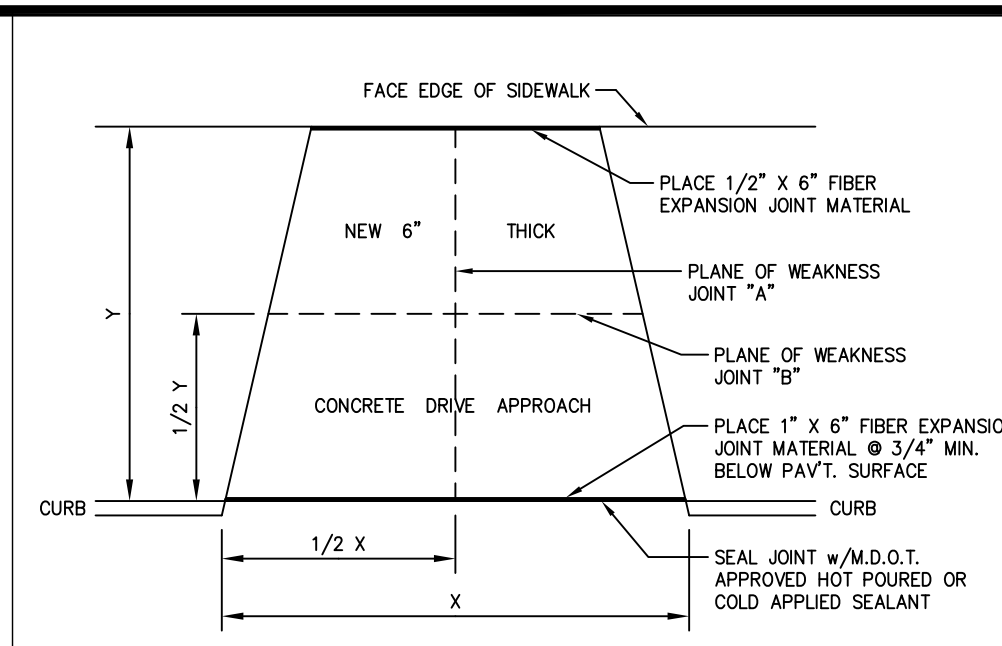
DRIVE APPROACH JOINT LAY-OUT DETAIL
N.T.S.



SIDEWALK RAMP DETAILS, TYPE R1 & R2
N.T.S.

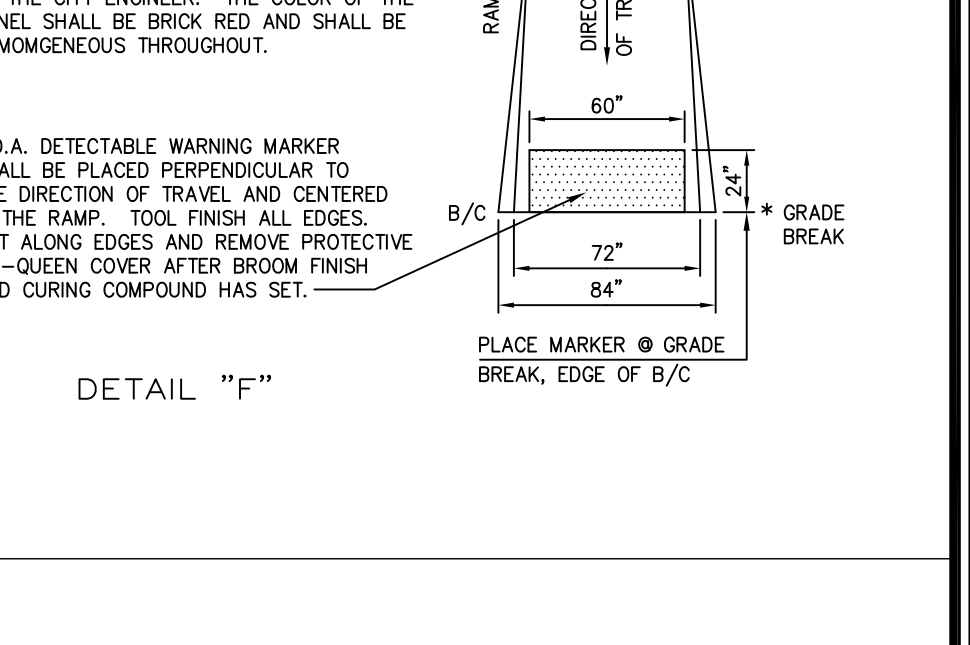
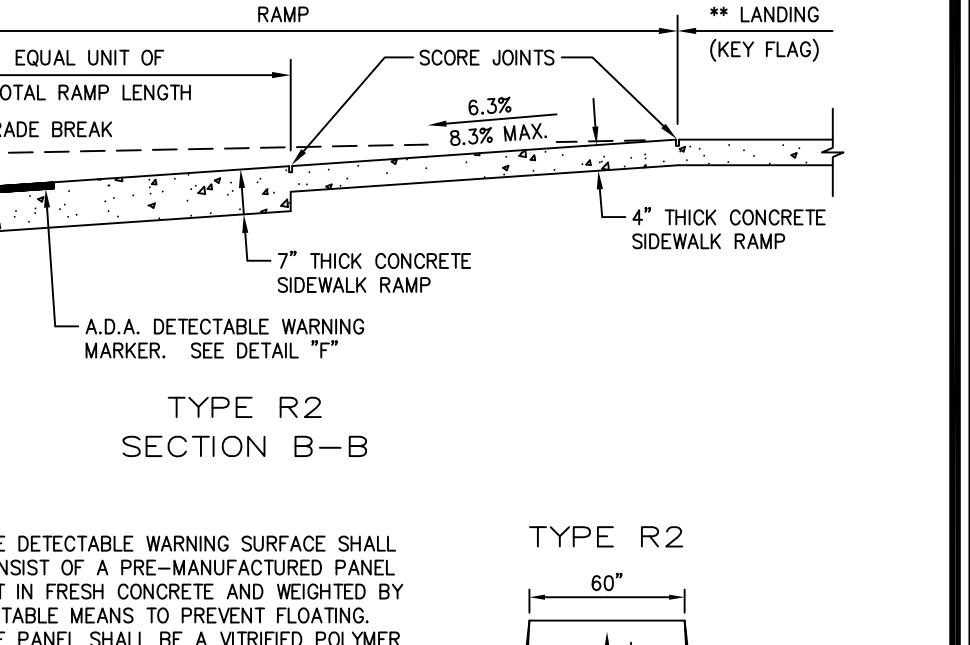
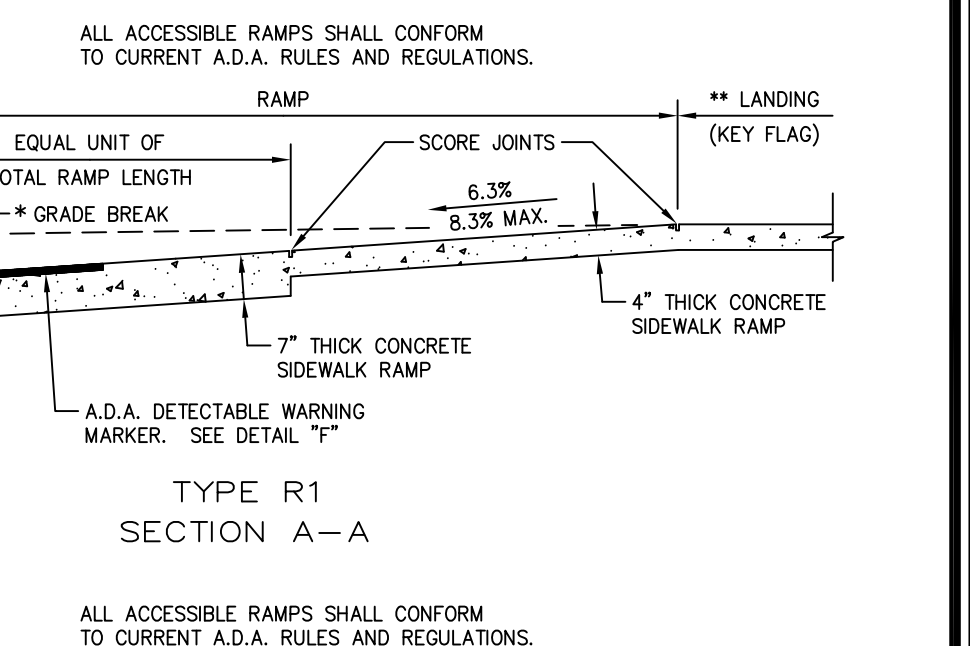


PAVEMENT JOINT LAYOUT
N.T.S.

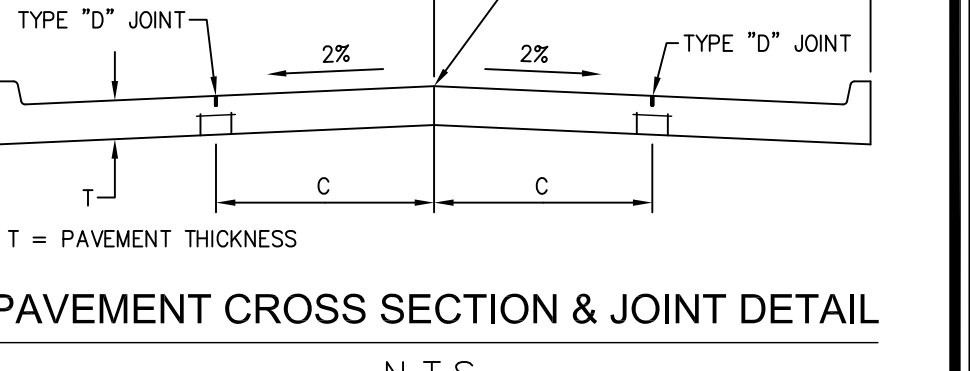


CITY OF SOUTHGATE STANDARD PUBLIC PAVING NOTES

- ALL CONSTRUCTION SHALL CONFORM TO THE CURRENT CITY OF SOUTHGATE SPECIFICATIONS FOR PAVING.
- ALL FILL REQUIRED TO MEET FINAL SUBGRADE ELEVATIONS SHALL BE SELECTED MATERIAL FREE FROM ORGANIC MATERIAL OR EXTRANEOUS MATTER AND SHALL BE PLACED IN LAYERS NOT EXCEEDING 12 INCHES AND COMPACTED TO 95% OF ITS MAXIMUM UNIT WEIGHT.
- THE SUBGRADE SHALL BE EVENLY ROLLED WITH A POWER DRIVEN PNEUMATIC TIRE ROLLER OR A SHEEP'S FOOT ROLLER WEIGHING A MINIMUM OF 10 TONS.
- ALL CURB SHALL HAVE A MINIMUM CEMENT CONTENT OF SIX (6) "SACK" PER CUBIC YARD, A SLUMP OF ONE TO THREE INCHES, AN AIR CONTENT OF 6.5% ± 1.5% AND A 28 DAY MINIMUM COMPRESSIVE STRENGTH OF 3,500 PSI. THE CONCRETE SHALL CONSIST OF 6A COURSE AGGREGATE, 2NS FINE AGGREGATE AND TYPE 1 OR TYPE 1A PORTLAND CEMENT CONFORMING TO ASTM C-150.
- ALL CURB SHALL BE INTEGRAL WITH THE PAVEMENT.
- AFTER PAVING, THE RIGHT OF WAY SHALL BE GRADED SUCH THAT AT A DISTANCE OF THREE FEET BEYOND THE CURB, THE ELEVATION SHALL BE THREE INCHES ABOVE THE TOP OF THE CURB AND THE AREA BETWEEN THIS POINT AND THE RIGHT OF WAY LINE SHALL BE GRADED ON A UNIFORM SLOPE. ALL GRADING SHALL BE WITH SUITABLE EXCAVATED MATERIAL.
- THE RIGHT OF WAY AND ALL DISTURBED AREAS SHALL BE RESTORED WITH THREE INCHES OF TOPSOIL AND SEEDING WITH A ROADSIDE MIXTURE (MOOT). AFTER THE TOPSOIL HAS BEEN PLACED, IT SHALL HAVE A CHEMICAL FERTILIZER APPLIED ON IT PRIOR TO THE SOWING OF THE SEED. AFTER THE SEED IS SOWN, MULCH SHALL BE APPLIED. HYDRO-SEEDING MAY BE USED.
- CONCRETE TESTING SHALL BE REQUIRED FOR ALL CONCRETE PLACED. TESTING SHALL BE AT A RATE OF ONE COMPLETE SET OF TESTS PER 100 CUBIC YARDS (MINIMUM) PLACED. THE CONTRACTOR SHALL SUBMIT AT LEAST THREE DAYS BEFORE PAVING A MIX DESIGN FROM THE CONCRETE SUPPLIER FOR APPROVAL BY THE CITY ENGINEER.
- IT SHALL BE THE RESPONSIBILITY OF THE PAVING CONTRACTOR TO ADJUST THE TOP OF ALL EXISTING STRUCTURES (SANITARY MANHOLES, STORM MANHOLES, CATCH BASINS AND GATE WELLS) WITHIN THE STREET TO THE FINAL GRADE AS REQUIRED BY THE CITY. ALL ADJUSTMENTS SHALL BE INCIDENTAL TO THE PAVING.



A	T	C	CENTERLINE JOINT	REMARKS
27"	9"	N/A	"B" OR "D"	INDUSTRIAL ROAD
27"	7"	7"	"B" OR "D"	IF PAVEMENT IS PLACED IN TWO POURS, USE "B" JOINT WITH 30" SPACING PER DETAIL THIS SHEET.
31"	7"	8"	"B" OR "D"	
37"	8"	11"	"B" OR "D"	ALTERNATE: PLACE 1/2" DIA. X 30" LONG EPOXY COATED DEFORMED BARS DRILLED INTO PAVEMENT AT 30" SPACING
41"	8"	11"	"B" OR "D"	



PAVEMENT CROSS SECTION & JOINT DETAIL
N.T.S.

PROJECT NUMBER:
PAV-1

DATE:
12-1-08

SCALE:
N/A

DESIGNED BY:
JMM

DRAWN BY:
JMM

CHECKED BY:

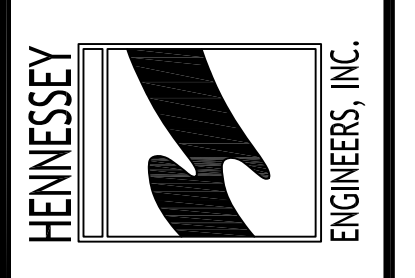
APPROVED BY:

REVISIONS

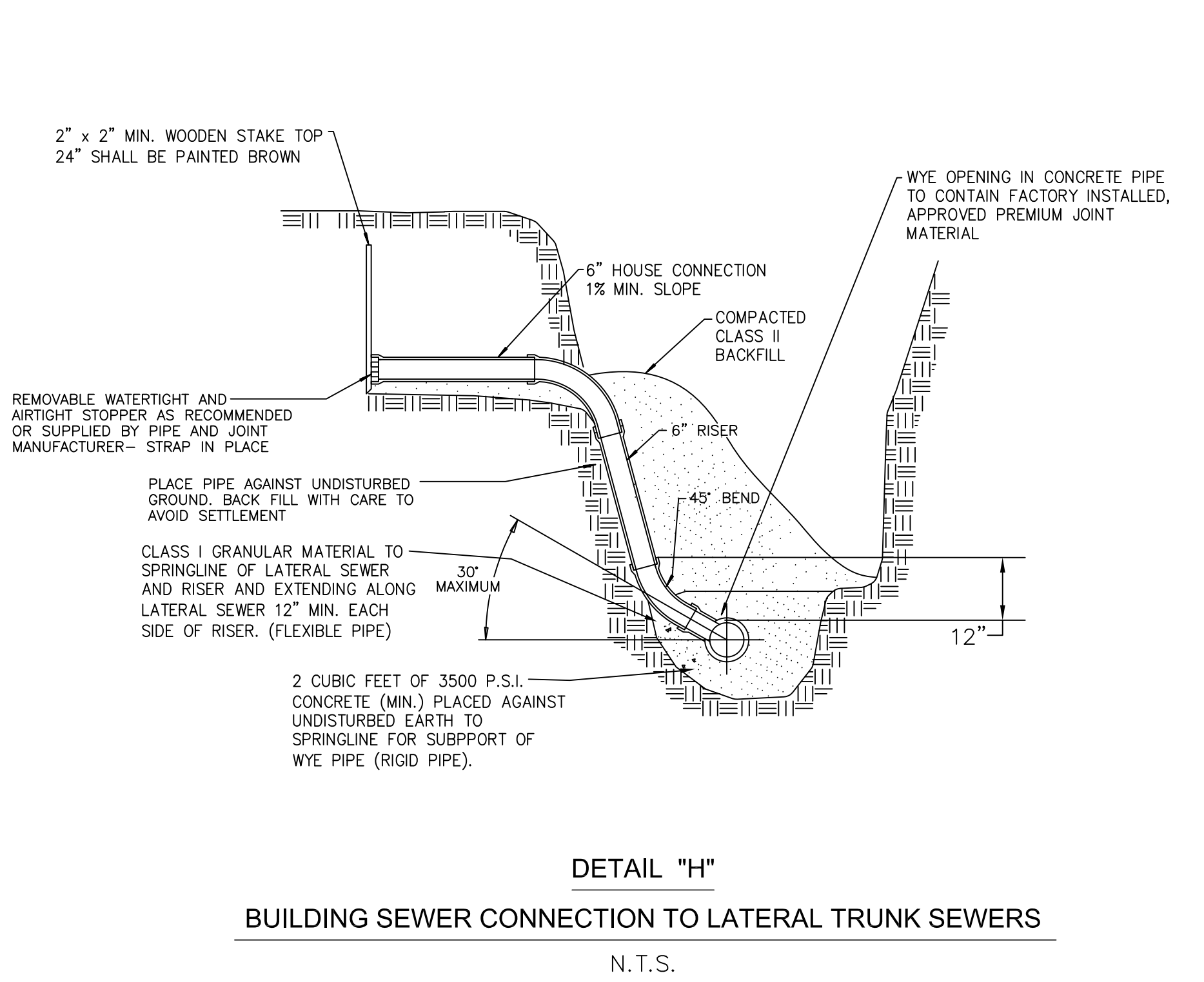
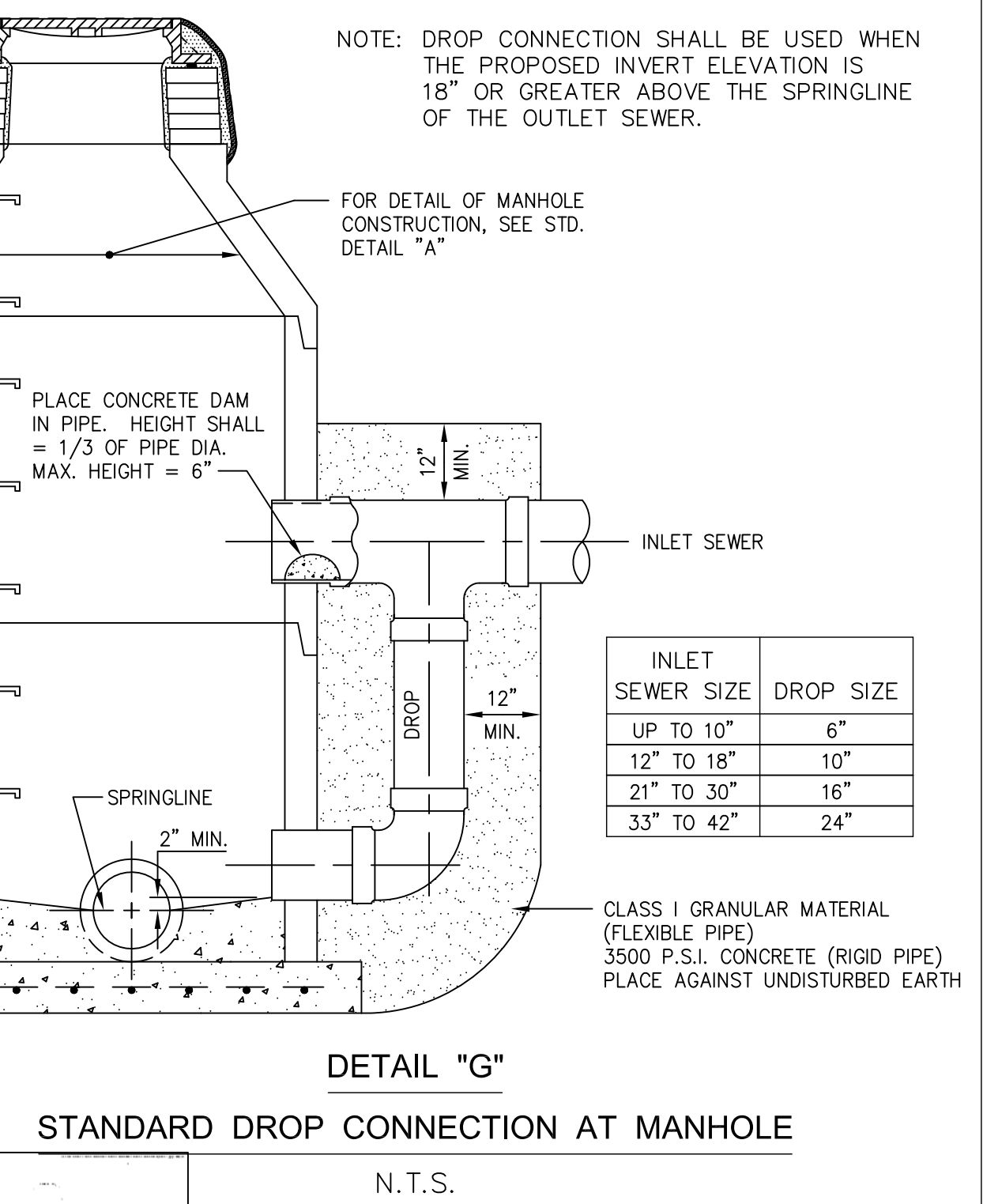
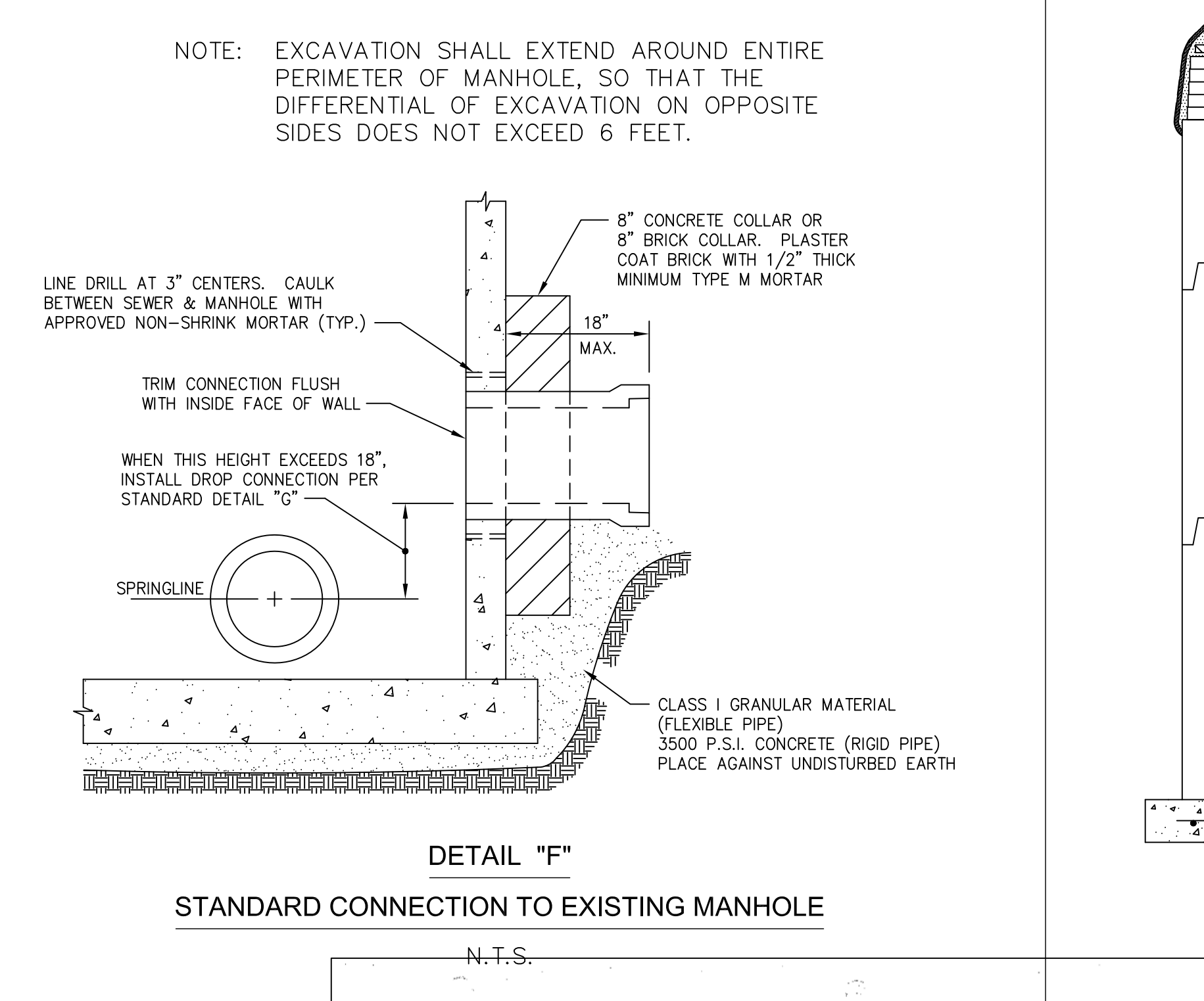
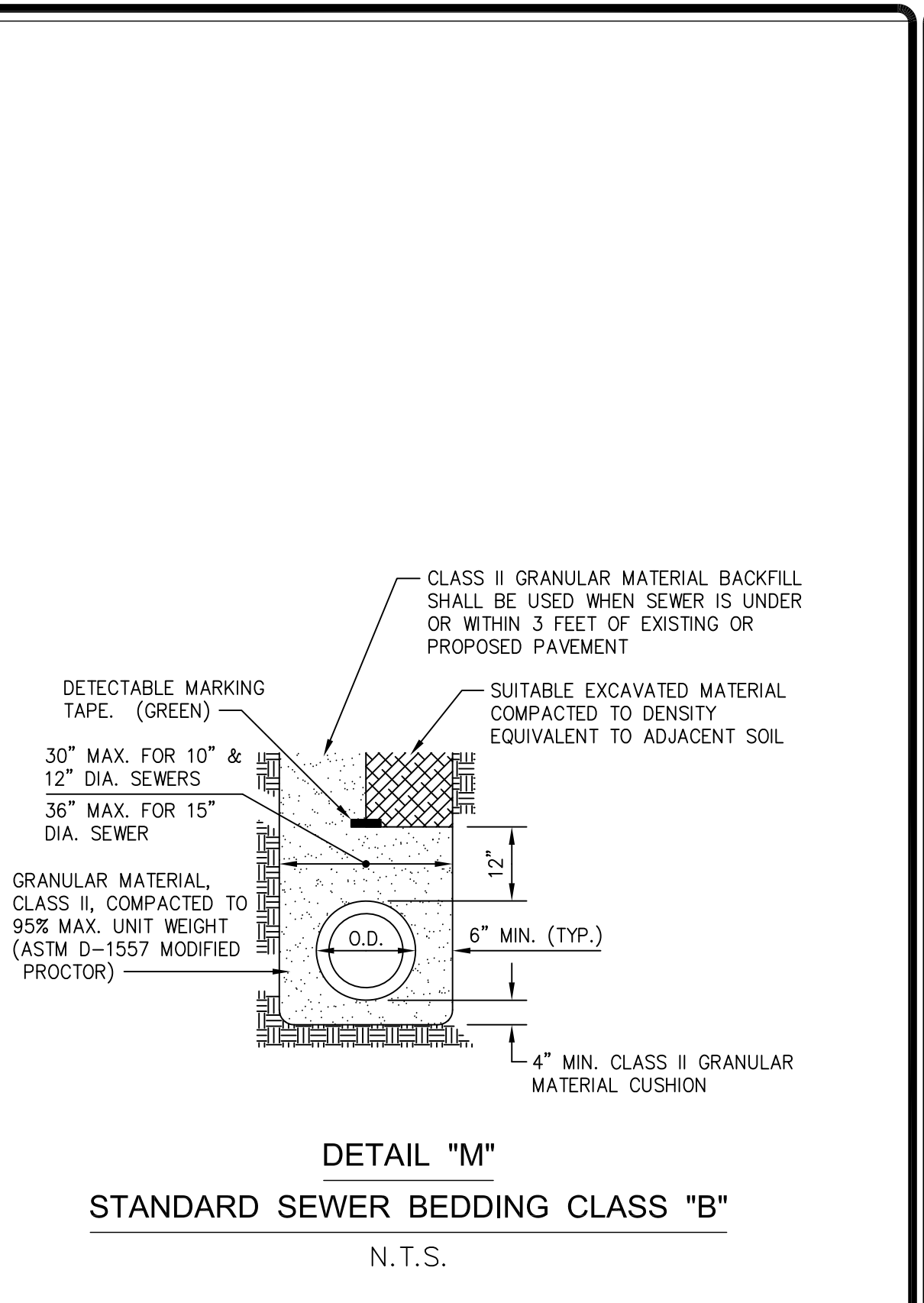
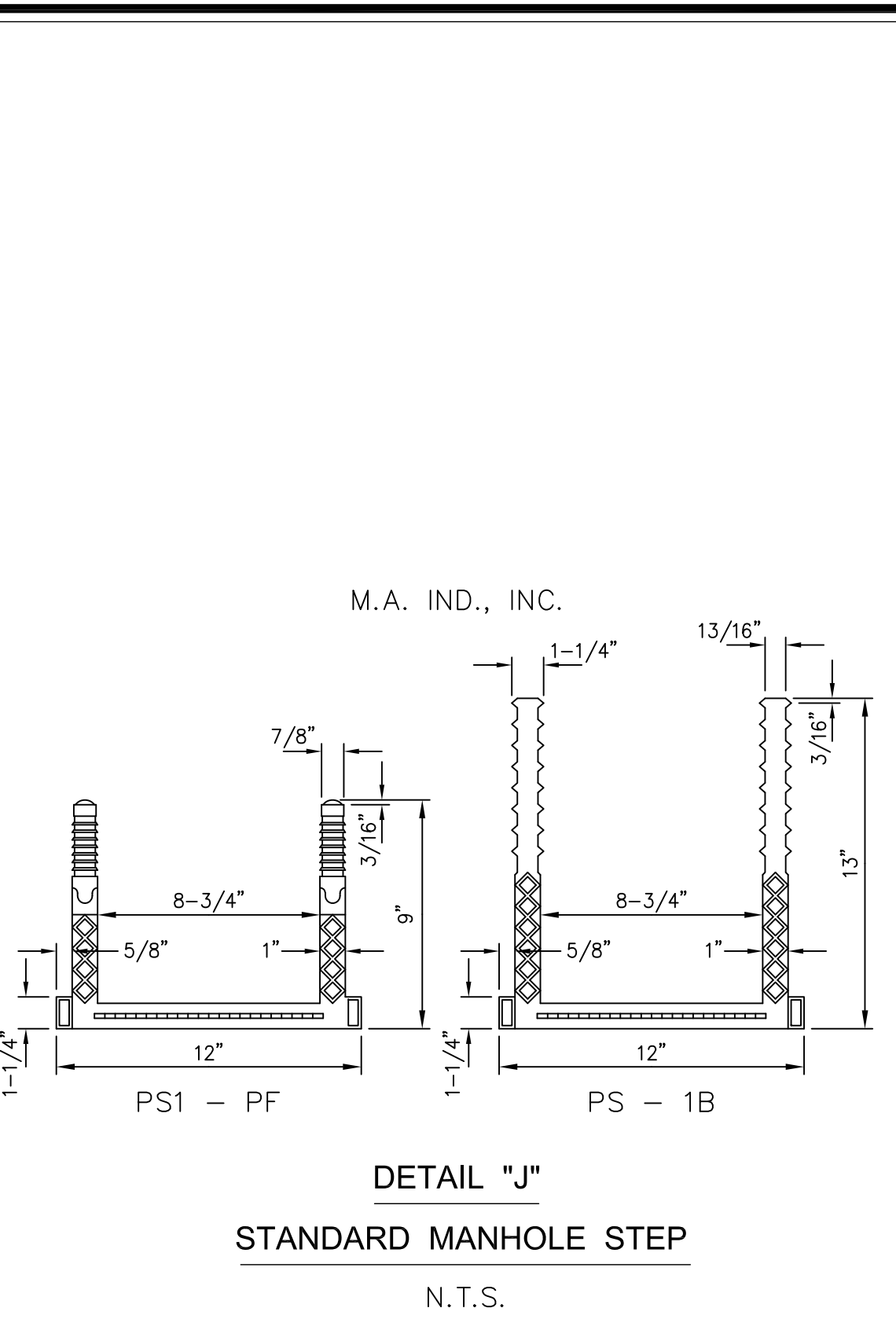
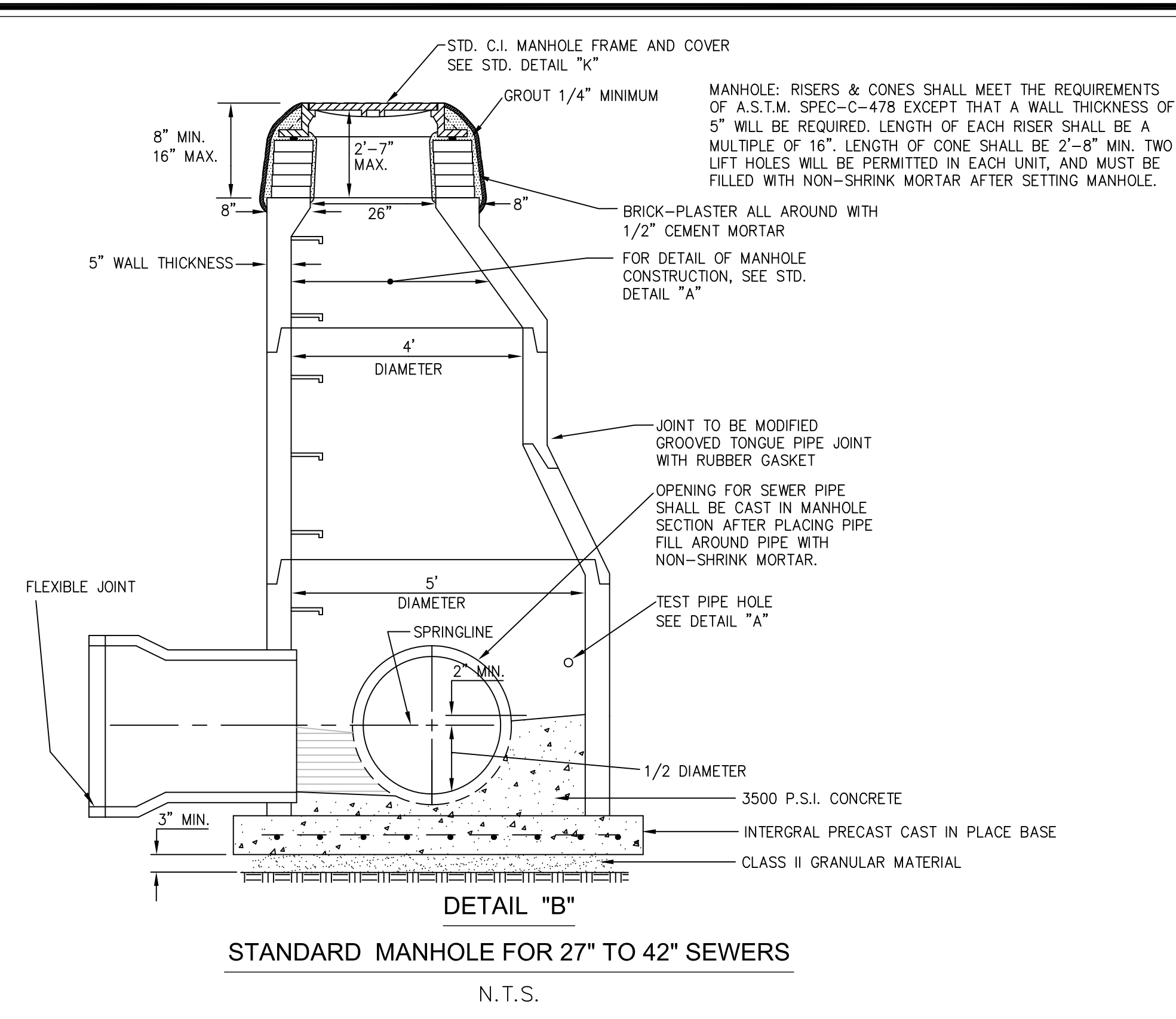
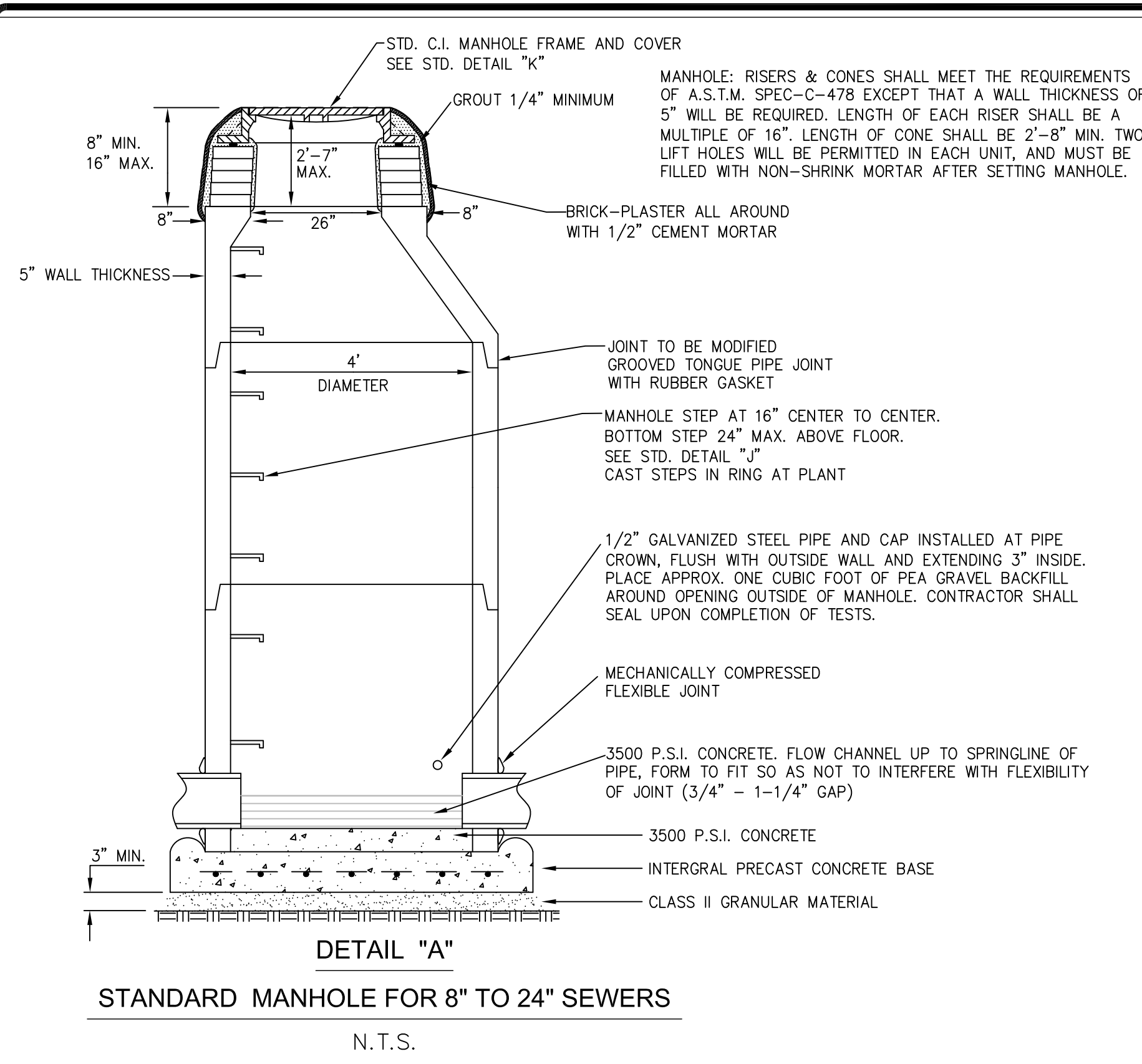
4-17-12

Standard Notes Updated

ENGINEERING THE FUTURE.
13500 REECK ROAD
SOUTHGATE, MI 48195
(734) 759-1600
FAX (734) 282-6566
WWW.ENGINEERS.COM

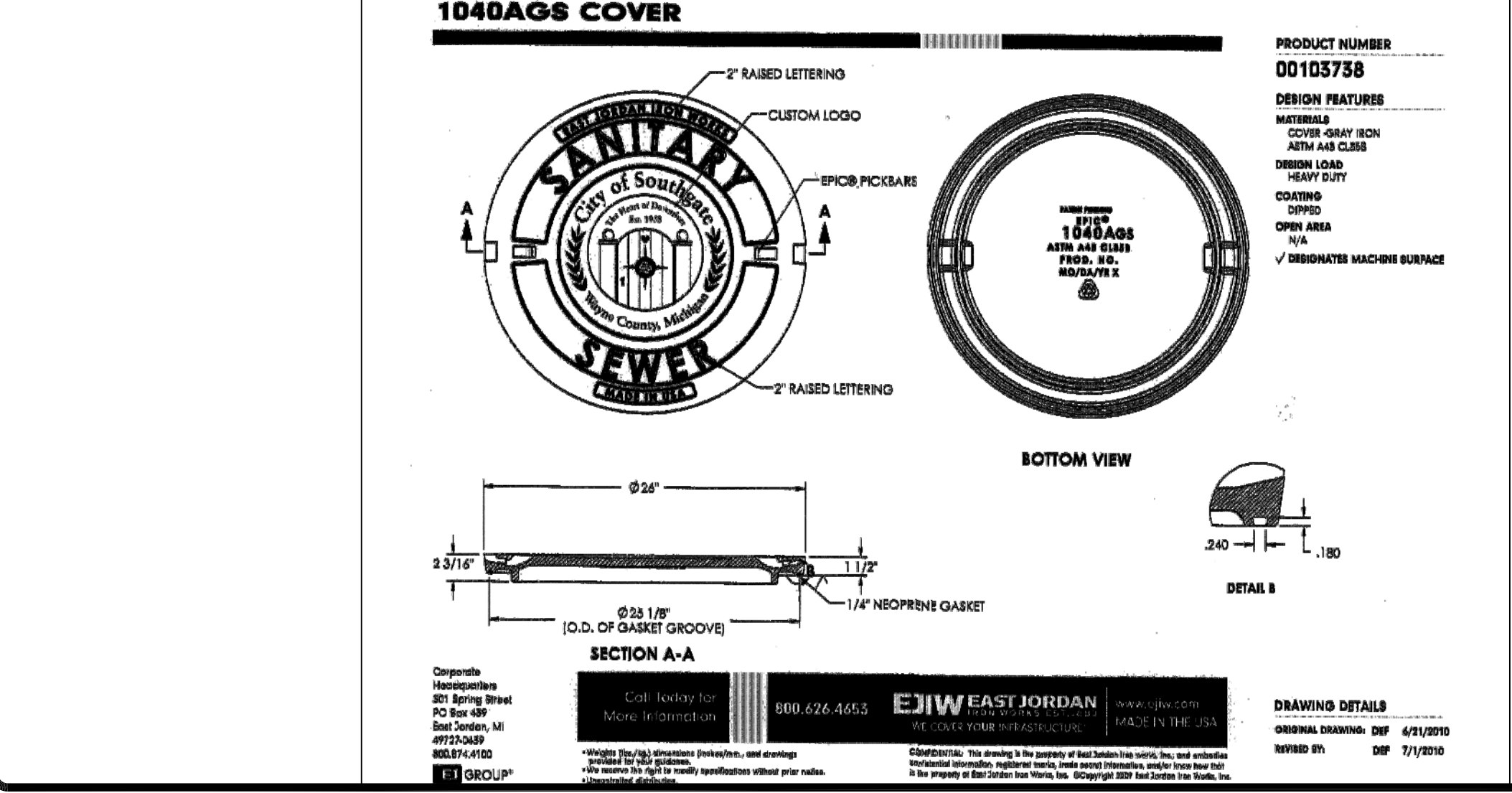


TITLE
PAVING DETAILS
STANDARD DETAILS
CITY OF SOUTHGATE
WAYNE COUNTY, MICHIGAN
SHEET PAV-1



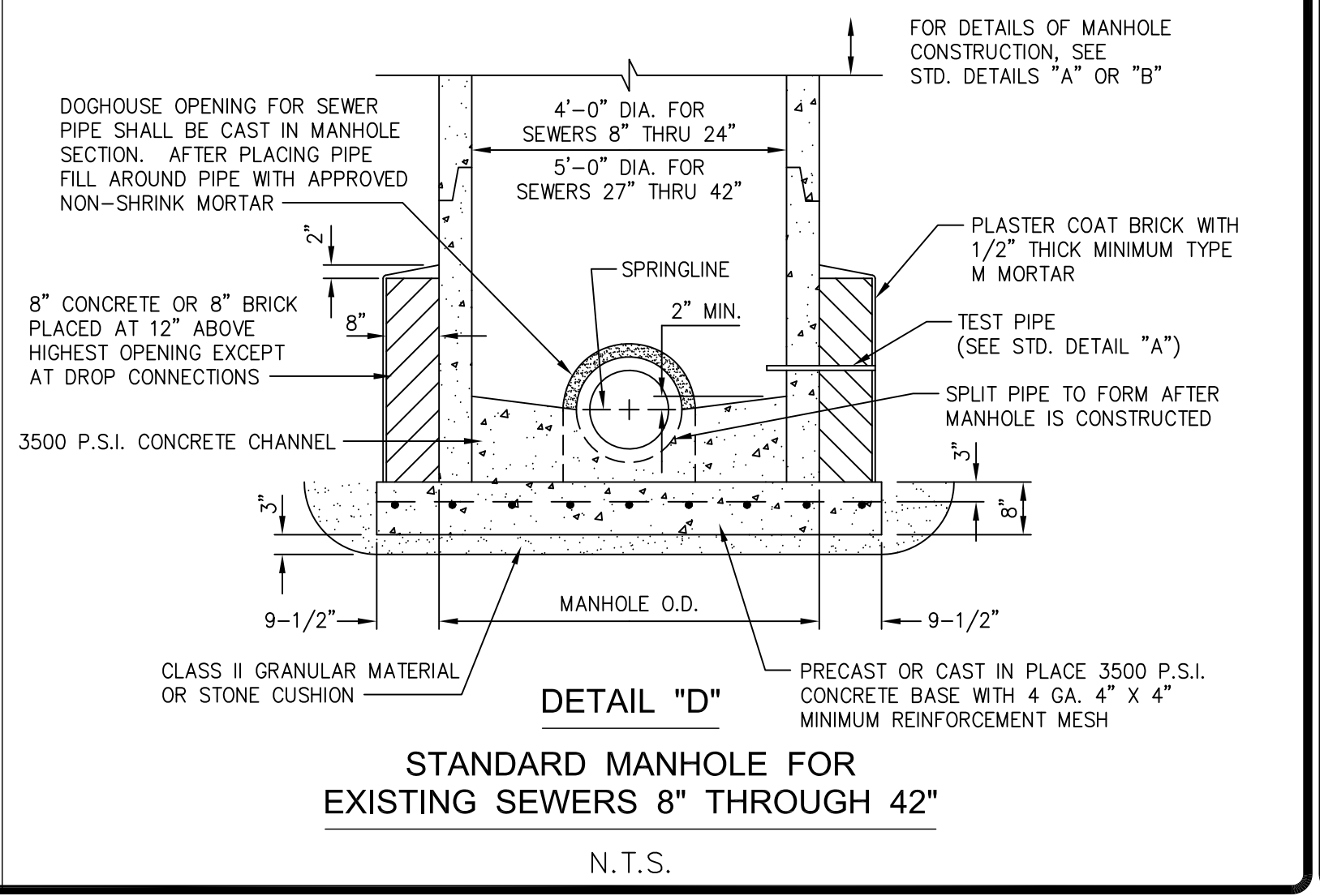
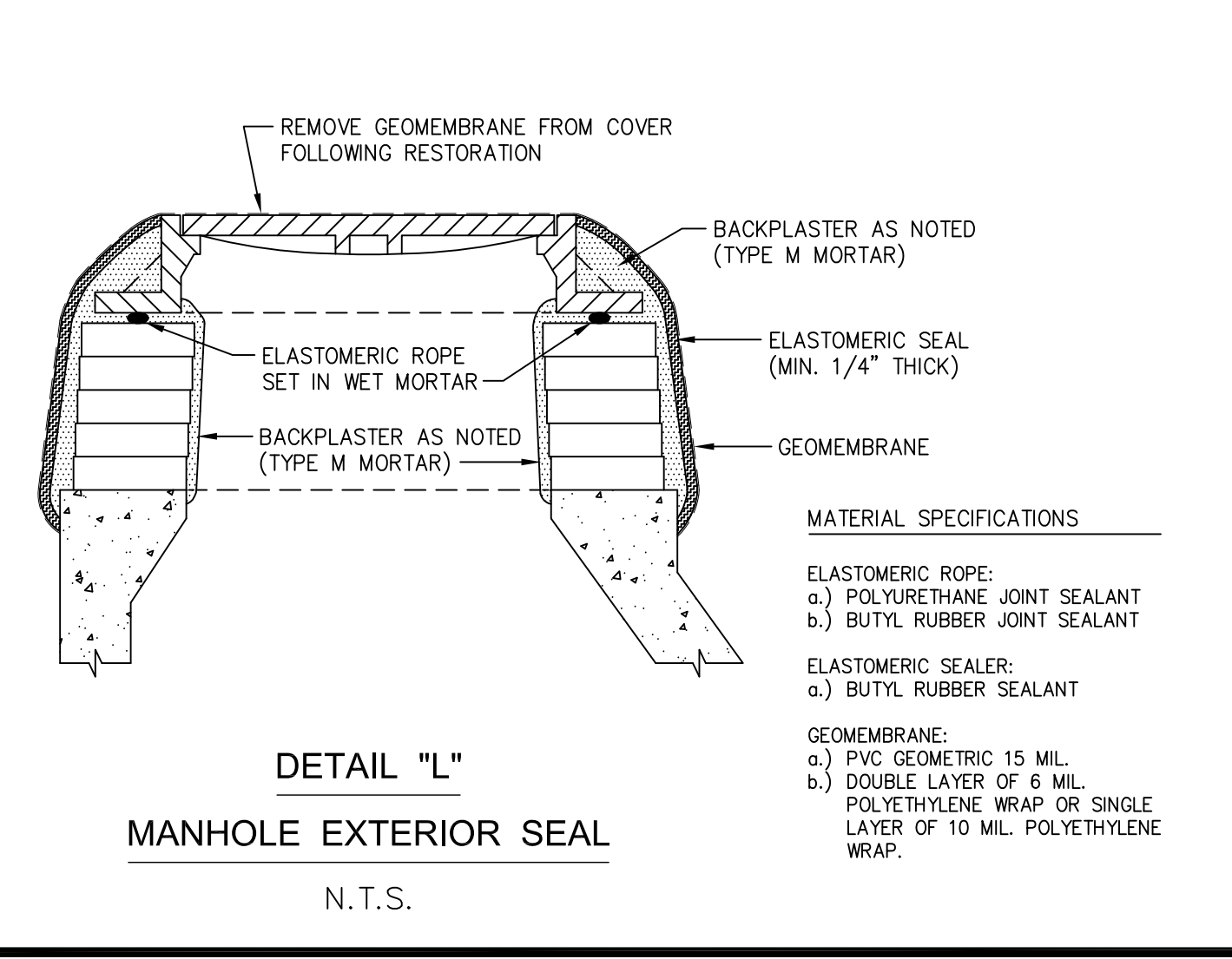
CITY OF SOUTHGATE STANDARD SANITARY SEWER NOTES

- ALL SANITARY SEWER PIPE IN SIZES 10 INCH TO 15 INCH SHALL BE PVC TRUSS GASKETED JOINT PIPE MEETING THE CURRENT REQUIREMENTS OF ASTM D2680-90, SDR 26 PVC PIPE MEETING ASTM 3034, A-2000 MEETING ASTM F949 AND F794 REQUIREMENTS OR ADS SANITITE HP PIPE MEETING ASTM F2736 STANDARDS. SANITARY SEWER PIPE ABOVE 18 INCHES IN DIAMETER AND GREATER SHALL BE REINFORCED CONCRETE PIPE ASTM C-76 CLASS IV MINIMUM, A-2000 ASTM F949 AND F794 FOR PIPE 18 INCHES TO 36 INCHES IN DIAMETER OR ADS SANITITE HP PIPE WHICH MEETS THE CURRENT REQUIREMENTS OF ASTM F2736 FOR PIPE UP TO 30 INCHES IN DIAMETER AND ASTM F2764 FOR PIPE DIAMETERS FROM 30 INCHES TO 60 INCHES. PIPE MATERIAL SHALL BE AS DIRECTED BY THE CITY ENGINEER AND/OR DPS DIRECTOR.
- ALL WYES, RISERS AND BUILDING SERVICE LEADS SHALL BE 6 INCH DIAMETER SDR 23.5 OR SDR 26 PVC PIPE MEETING CURRENT ASTM D3034.
- EACH WYE OR END OF BUILDING LEAD SHALL BE CAPPED WITH THE SAME TYPE OF MATERIAL AS THE LEAD. ALL CLEANOUTS SHALL BE J.R. SMITH #4240U4 OR AS APPROVED EQUAL BY THE CITY ENGINEER. CLEANOUTS SHALL HAVE A MINIMUM OF A 2 FOOT X 2 FOOT CONCRETE PAD.
- ALL SANITARY SEWER LEADS SHALL BE INSTALLED A MINIMUM OF 1 FOOT BEYOND THE RIGHT OF WAY LINE OR EASEMENT LINE AS SHOWN ON PLANS.
- ALL TRENCH DETAILS FOR BOTH TRENCH A AND TRENCH B SHALL BE BASED ON THE MANUFACTURERS RECOMMENDATIONS FOR THE GIVEN TYPE OF PIPE.
- NO CONNECTION RECEIVING STORM WATER, GROUND WATER OR SURFACE WATER SHALL BE MADE TO THE SANITARY SEWER.
- INFILTRATION FOR ANY SECTION OF SEWER BETWEEN MANHOLES SHALL NOT EXCEED 100 GALLONS PER INCH OF DIAMETER PER MILE PER 24 HOURS.
- NO FOOTING DRAINS SHALL BE CONNECTED TO THE SANITARY SEWER BUILDING LEAD.
- TESTING OF ALL SANITARY SEWER SHALL BE IN ACCORDANCE WITH CURRENT SEWER USE REGULATIONS OF THE WAYNE COUNTY DEPARTMENT OF ENVIRONMENT AND WILL BE REQUIRED PRIOR TO APPROVAL BY THE CITY OF SOUTHGATE. TESTING SHALL INCLUDE: (A) TELEVISION, AND (B) AIR, INFILTRATION OR EXFILTRATION, OR A COMBINATION OF SAME. TESTING COSTS SHALL BE BORNE BY THE CONTRACTOR.
- TEMPORARY BULKHEADS SHALL BE INSTALLED AS DIRECTED BY THE CITY ENGINEER. THE BULKHEADS SHALL NOT BE REMOVED UNTIL SUCCESSFUL TESTING HAS BEEN COMPLETED.
- ALL SANITARY SEWER MANHOLES SHALL BE PRECAST STRUCTURES WITH RUBBER GASKETED JOINTS FOR THE MANHOLE SECTIONS. EACH MANHOLE SECTION AND JOINT SHALL BE SEALED EXTERNALLY USING "CRETEX WRAP" EXTERNAL JOINT SEALER OR APPROVED EQUAL. ALL SANITARY SEWER MANHOLE CHIMNEYS SHALL BE SEALED WITH "WRAPID SEAL" EXTERNAL ENCAPSULATION SYSTEM.
- ALL ELEVATIONS ARE BASED ON U.S.C. & G.S. DATUM.
- CONTRACTOR SHALL NOTIFY WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES, ENGINEERING DIVISION, PERMIT OFFICE, 48 HOURS PRIOR TO THE START OF CONSTRUCTION.
- HENNESSEY ENGINEERS, INC. (734-759-1600) AND THE CITY OF SOUTHGATE DEPARTMENT OF PUBLIC SERVICES AT (734-258-3074 OR 734-258-3079) SHALL BE NOTIFIED AT LEAST THREE (3) WORKING DAYS PRIOR TO START OF THE SANITARY SEWER CONSTRUCTION.
- DIFFERENTIAL OF EXCAVATION AROUND THE EXISTING MANHOLE SHALL NOT EXCEED 6 FEET.
- THE CONTRACTOR SHALL PLACE A TEMPORARY PLUG FOR TESTING AT LOCATIONS SHOWN ON THE PROFILE. THE PLUGS SHALL REMAIN IN PLACE UNTIL SATISFACTORY TEST RESULTS HAVE BEEN REVIEWED AND APPROVED BY THE CITY AND WCDDE.
- THE CONTRACTOR SHALL NOTIFY THE WATER RESOURCES DIVISION OF THE SOUTHEAST MICHIGAN DISTRICT OFFICE AT (586) 753-3793 A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION OF A NEW SANITARY PROJECT.
- THE SANITARY SEWER SHALL BE TESTED FOR DEFLECTION 30 DAYS AFTER INSTALLATION UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER. THE DEFLECTION SHALL NOT EXCEED 5% OF THE NORMAL PIPE DIAMETER. PIPE WHICH DEFLECTS GREATER THAN 5% WILL BE REMOVED AND REPLACED BY THE CONTRACTOR AT NO ADDITIONAL CHARGE TO THE OWNER.



BRICK OR BLOCK CHIMNEY TYPE EXTERIOR SEAL NOTES:

- SET ELASTOMERIC "ROPE" IN WET MORTAR. CAREFULLY PLACE FRAME ON "ROPE" AND WET MORTAR. (TYPE M MORTAR.)
- BACKPLASTER THE INTERIOR OF THE NEW CHIMNEY FROM 1" ABOVE THE BOTTOM OF THE FRAME TO 1" BELOW THE BOTTOM OF THE CORBAL SECTION. (1/2" MINIMUM THICKNESS, TYPE M MORTAR.)
- BACKPLASTER THE EXTERIOR OF THE NEW CHIMNEY FROM 1" BELOW THE TOP OF THE FRAME, OVER THE FILLET AND FLANGE AS SHOWN, TO 2" BELOW THE BOTTOM OF THE CORBAL SECTION. EXTERIOR MORTAR SURFACE SHALL BE FINISHED USING A STEEL TROWEL OR WET BRUSH TO ACHIEVE A UNIFORM AND SMOOTH FINISH. (1/2" MINIMUM THICKNESS, TYPE M MORTAR.)
- REMOVE ANY DEBRIS AND/OR MORTAR DROPPINGS FROM THE INTERIOR OF THE MANHOLE WALL, STEPS, INVERT AND BENCH. CAREFULLY SET COVER ON FRAME.
- AFTER MORTAR HAS SET, SEAL EXTERIOR MORTARED AREA WITH ELASTOMERIC SEALER. (1/4" MINIMUM THICKNESS, TROWELABLE GRADE.)
- COVER THE ELASTOMERIC SEALER WITH THE GEOMEMBRANE "PANOCHO" STYLE, DRAPING OVER FRAME AND COVER PRIOR TO BACKFILLING.
- WHERE THE MANHOLE FRAME AND CHIMNEY IS EXPOSED (DITCH, SLOPED LAWN, etc.) THE ELASTOMERIC SEALER SHALL BE APPLIED UP TO THE FINISH GRADE ELEVATION ONLY. FOLLOWING RESTORATION, REMOVE THE GEOMEMBRANE IN EXPOSED AREAS OF CHIMNEY AND FRAME AND COVER.



PROJECT NUMBER:
SAN-1

DATE:
12-1-08

SCALE:
N/A

DESIGNED BY:
JMM

DRAWN BY:
JMM

CHECKED BY:

APPROVED BY:

REVISIONS

4-17-12

Standard Notes Updated

11/28/16
FRAME AND COVER

HENNESSEY ENGINEERS, INC.

ENGINEERING THE FUTURE.

13500 REECK ROAD
SOUTHGATE, MI 48195
(734) 759-1600
FAX (734) 282-6566
WWW.HENNESSEYENGINEERS.COM

TITLE

SANITARY SEWER DETAILS

STANDARD DETAILS

CITY OF SOUTHGATE

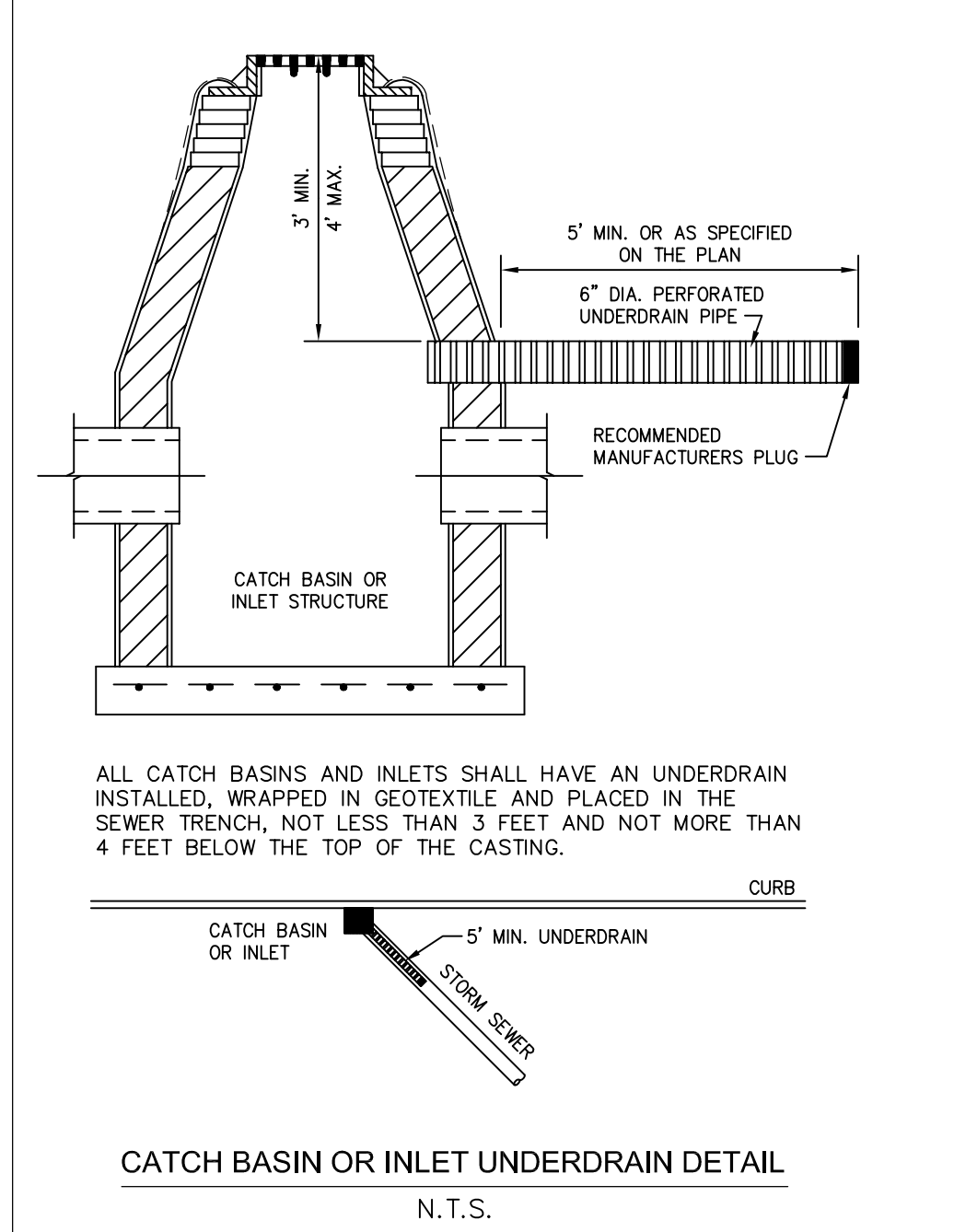
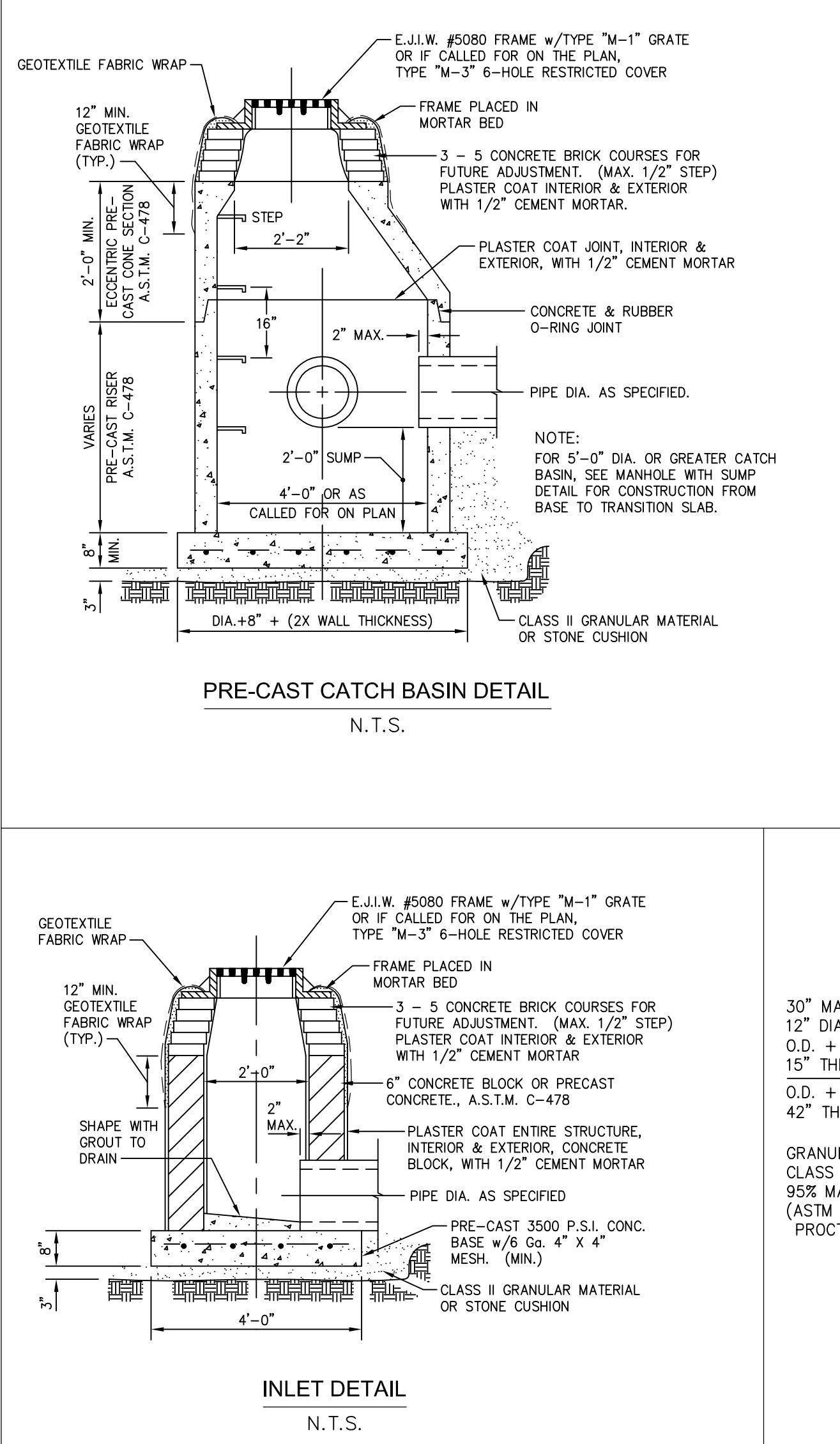
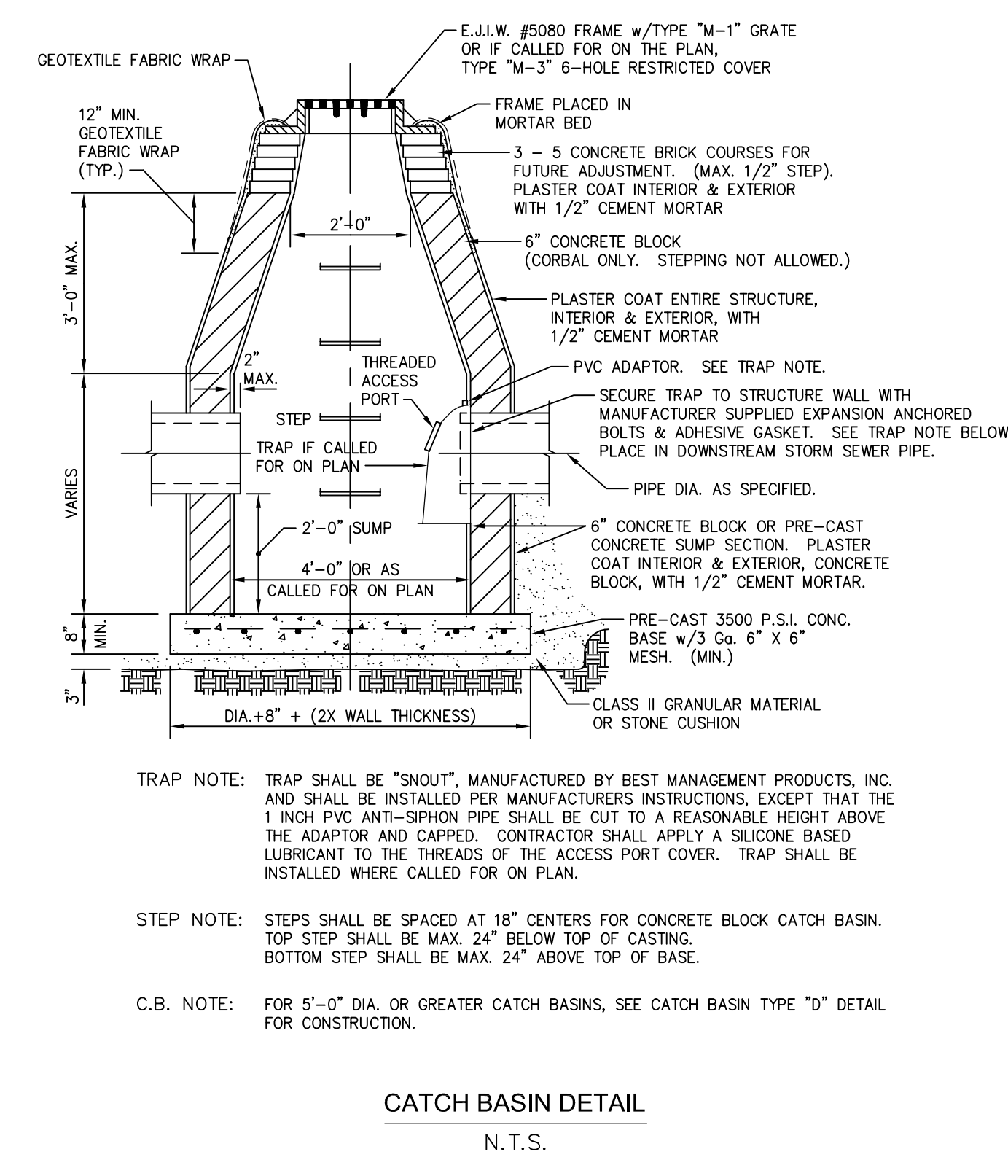
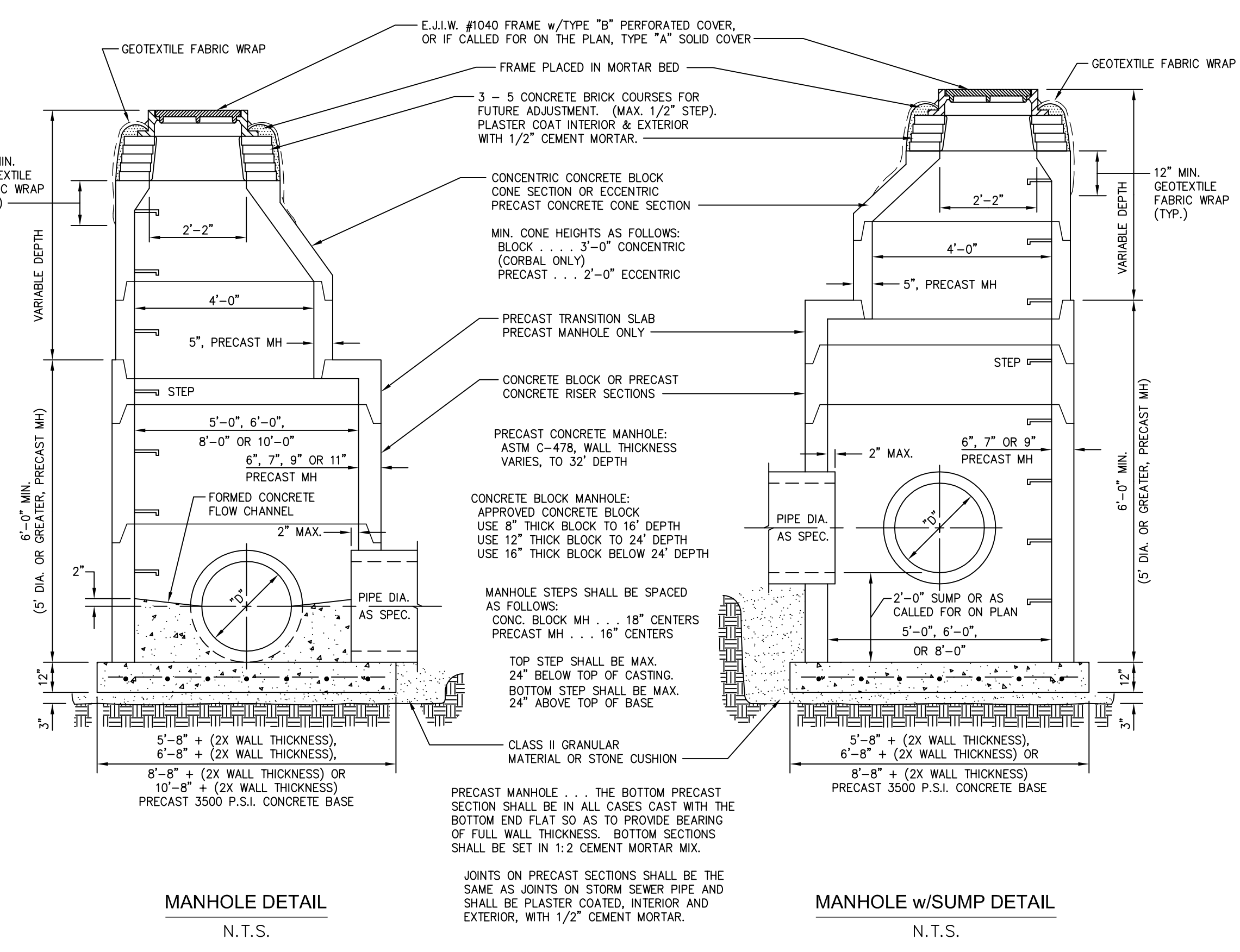
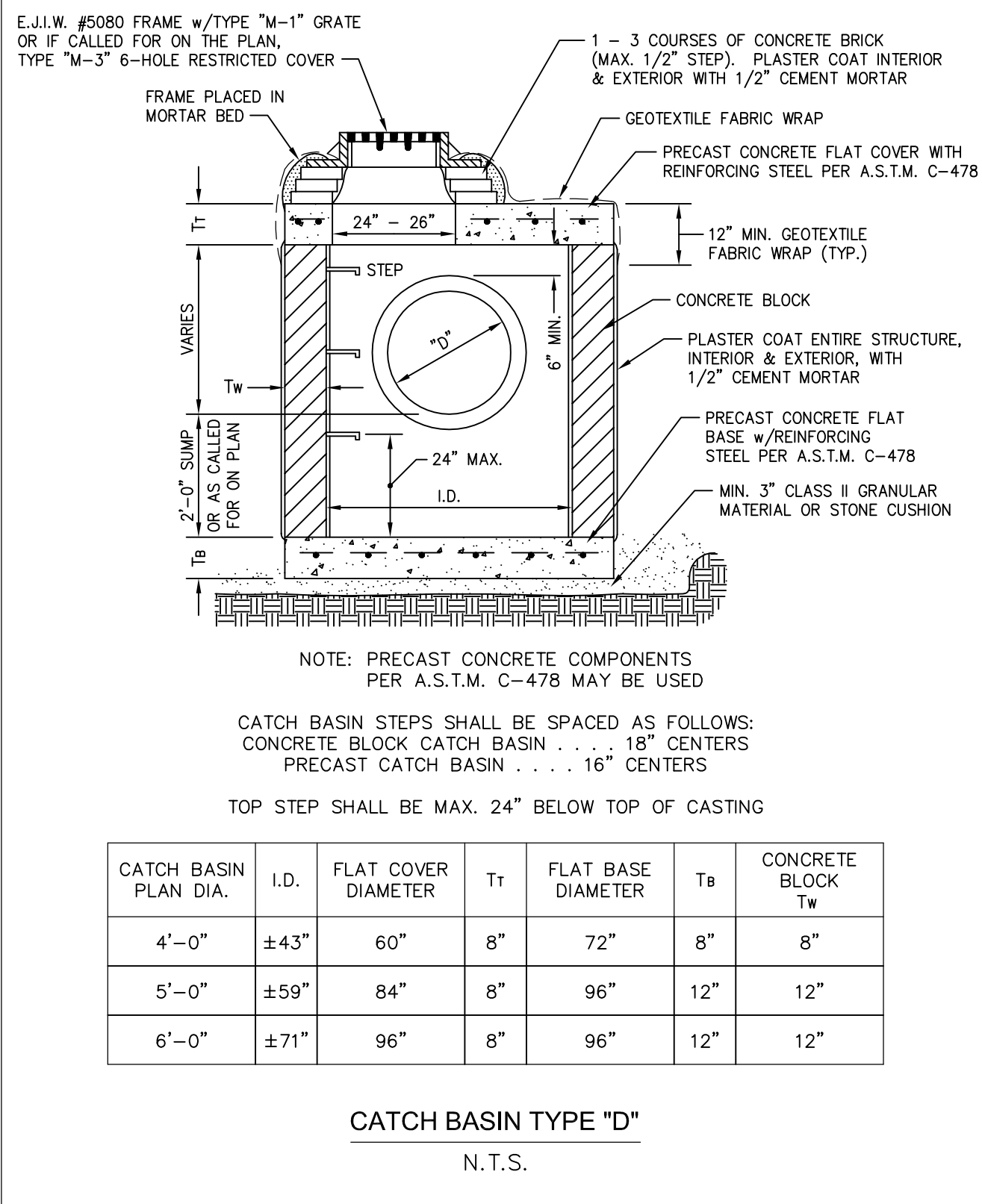
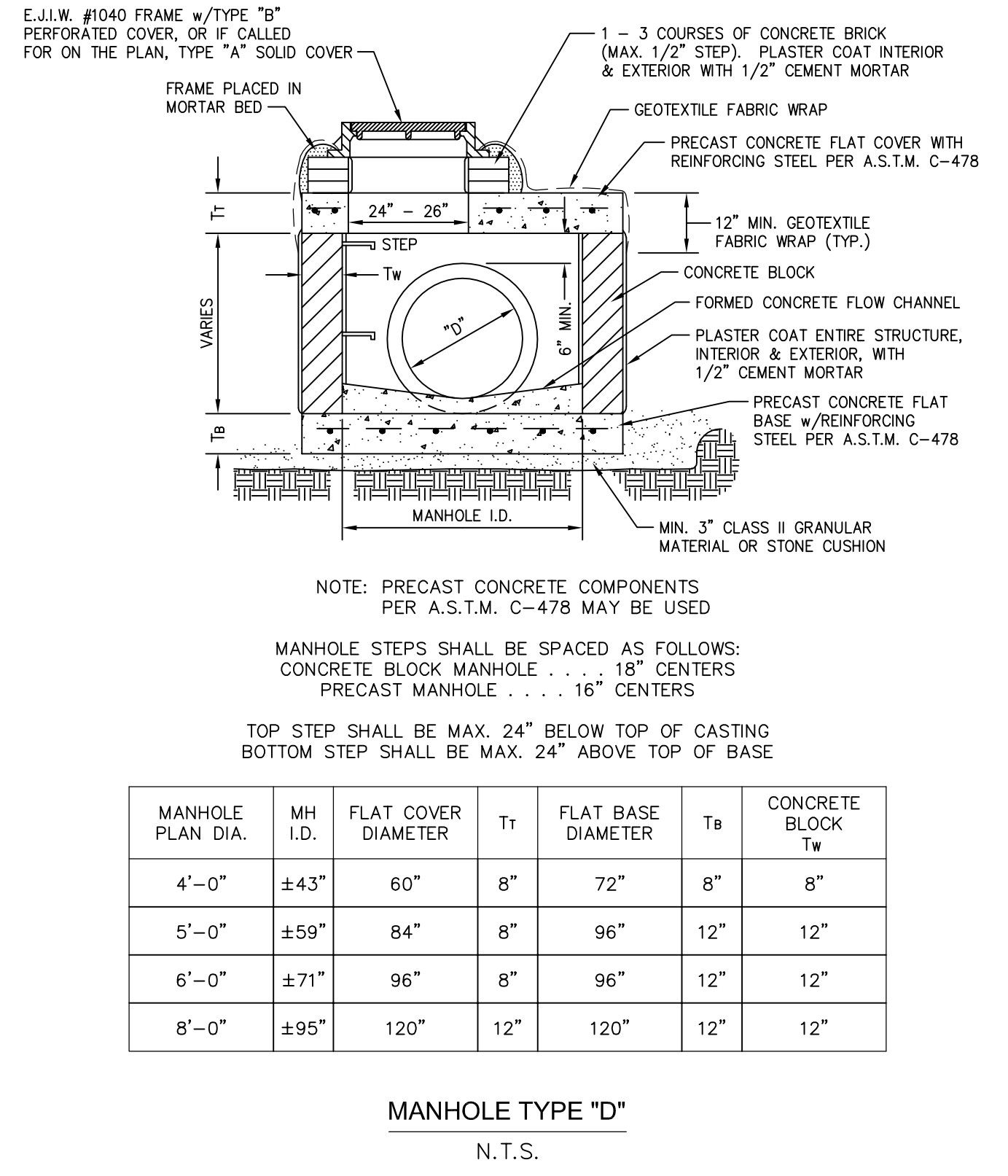
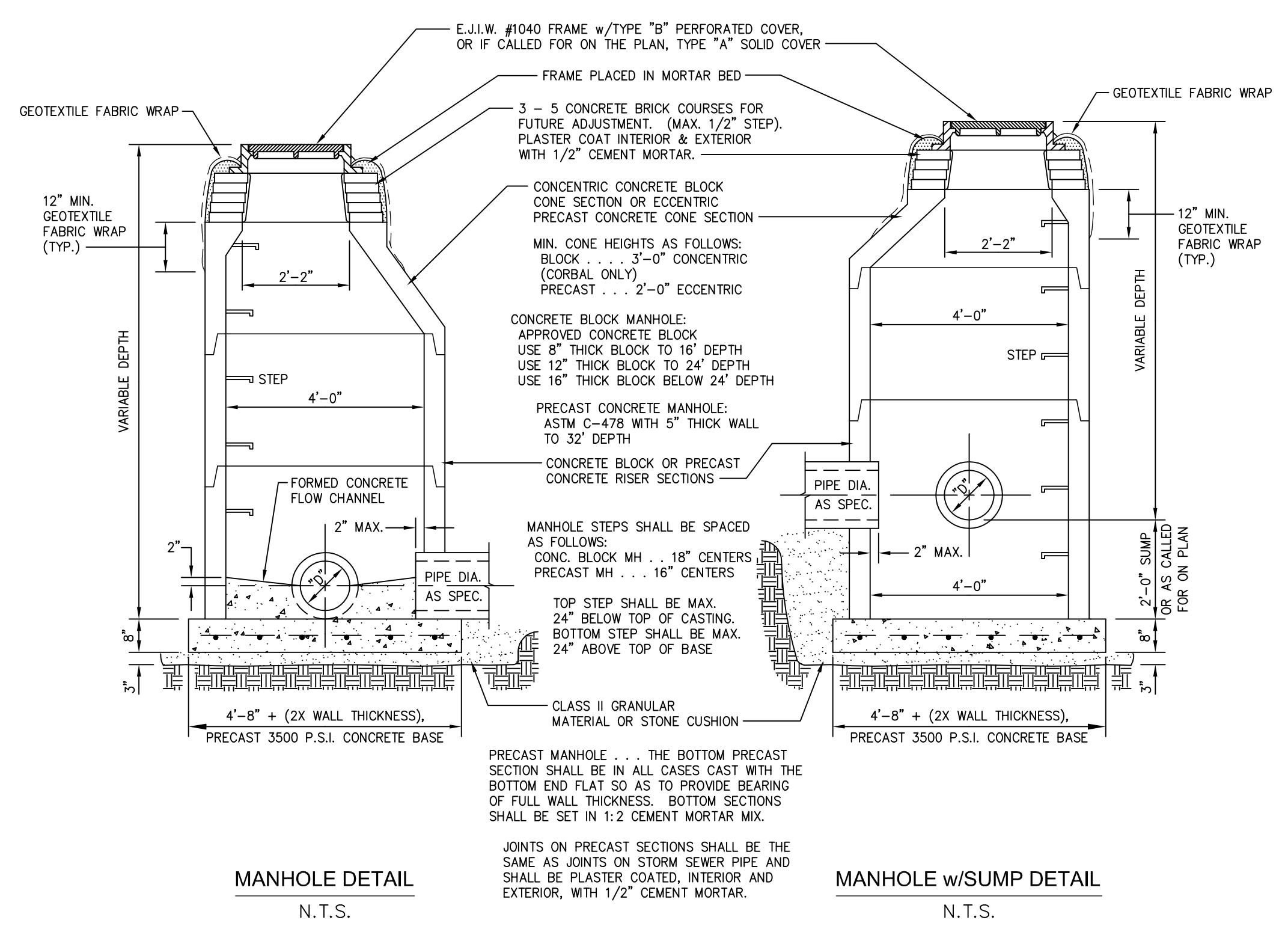
WAYNE COUNTY, MICHIGAN

SHEET

SAN-1

STORM SEWER NOTES

- ALL STORM SEWER PIPE 12-INCHES AND LARGER SHALL BE REINFORCED CONCRETE, ASTM C-76, CL. IV OR CL.V PIPE WITH MODIFIED GROOVE TONGUE WITH RUBBER JOINTS, N-12 WT. IB PIPE MEETING CURRENT ASTM F2648 AND AASHTO M294 STANDARDS FOR SIZES 12-INCH THROUGH 60-INCH, CONTECH D-2000 (12-INCH THROUGH 36-INCH) PIPE MEETING CURRENT ASTM F949 OR AASHTO M294 STANDARDS OR CONTECH DUROMAXX (24-INCH THROUGH 120-INCH) PIPE.
- ALL CONSTRUCTION SHALL CONFORM TO CURRENT CITY OF SOUTHGATE DETAILED SPECIFICATIONS FOR STORM SEWER UTILITIES.
- A 4" COMPACTED SAND BEDDING SHALL BE PROVIDED UNDER ALL SEWER PIPE.
- ALL TRENCH DETAILS FOR BOTH TRENCH A AND TRENCH B SHALL BE BASED ON THE MANUFACTURER'S RECOMMENDATIONS FOR THE GIVEN TYPE OF PIPE.
- ALL ROAD CATCH BASINS AND INLETS SHALL HAVE UNDERDRAINS, A MINIMUM OF 5 FEET LONG WITH END PLUG OR CAP, PLACED INTO THE SEWER TRENCH AND WRAPPED WITH SOIL FILTRATION FABRIC. THE UNDERDRAIN SHALL BE EITHER CORRUGATED OR SMOOTH WALL PLASTIC TUBING OF POLYETHYLENE OR POLYVINYLCHLORIDE AND SHALL CONFORM TO THE REQUIREMENTS FOR HEAVY-DUTY TUBING OF ASTM F 405, EXCEPT THAT THE BASIC MATERIALS FOR USE IN FABRICATING PVC TUBING SHALL BE A PVC PLASTIC MEETING THE REQUIREMENTS AS SPECIFIED IN ASTM D 3033. THE PERFORATIONS SHALL BE IN THE LOWER SEGMENT ONLY AND SHALL BE CLEARLY MARKED WITH A TOP LOCATING STRIPE OR EMBOSSEMENT.
- ALL DRAINAGE STRUCTURES SHALL HAVE A GEOTEXTILE FABRIC WRAPPED AROUND THE BRICK AND MORTAR WORK. THE FABRIC SHALL BE A NON-WOVEN GEOTEXTILE MEETING THE MINIMUM ASTM REQUIREMENTS FOR GEOTEXTILE BLANKET AS ESTABLISHED BY MDT, SECTION 910.
- STROM MANHOLES AND CATCH BASINS SHALL BE PRECAST STRUCTURES. FRAMES AND CASTINGS FOR MANHOLES AND CATCH BASINS SHALL BE AS MANUFACTURED BY EJ (FORMERLY EAST JORDAN IRON WORKS). ALL STORM SEWER STRUCTURES SHALL BE PRECAST STRUCTURES WITH RUBBER GASKETED JOINTS FOR THE MANHOLE SECTIONS. EACH MANHOLE AND CATCH BASIN SECTION AND JOINT SHALL BE SEALED EXTERNALLY USING A "CRETEX WRAP" EXTERNAL JOINT SEALER OR APPROVED EQUAL.



ENGINEERING THE FUTURE.
13500 REECK ROAD
SOUTHGATE, MI 48195
(734) 759-1600
FAX (734) 282-6566
WWW.HENGINEERS.COM

HENNESSEY ENGINEERS, INC.

TITLE
STORM SEWER DETAILS
STANDARD DETAILS
CITY OF SOUTHGATE
WAYNE COUNTY, MICHIGAN

SHEET
STM-1

EXHIBIT "B" - STORM WATER MANAGEMENT SYSTEM LONG-TERM MAINTENANCE PLAN

Wayne County DPS Permit No.: M -
Wayne County DPS Plan review No.: R17-632

A. Physical Limits of the Storm Water Management System

The storm water management system (SWMS) subject to this long-term maintenance plan (Plan) is depicted on Exhibit A to the permit and includes without limitation the storm sewers, swales, catch basins, manholes, inlets, manufactured treatment systems, underground detention system, outlet control structure and outlet pipe that conveys flow from the underground detention system to an existing manhole on the Enclosed Woodruff Drain within the right-of-way of North Line Road. For the purposes of this plan, this SWMS and all of its components as shown in Exhibit A is referred to as "Southgate Taco Bell SWMS".

B. Time Frame for Long-Term Maintenance Responsibility

Kissemkone, LLC is responsible for maintaining the Southgate Taco Bell SWMS including complying with applicable requirements of the local or Wayne County soil erosion and sedimentation control program until Wayne County releases the construction permit. Long-term maintenance responsibility for the Southgate Taco Bell SWMS commences when defined by the maintenance permit issued by the County. Long-term maintenance continues in perpetuity.

C. Manner of Insuring Maintenance Responsibility

The City of Southgate has assumed responsibility for long-term maintenance of the Southgate Taco Bell SWMS. The resolution by which The City of Southgate has assumed maintenance responsibility is attached to the permit as Exhibit C. Kissemkone, LLC, through a maintenance agreement with the City of Southgate, has agreed to perform the maintenance activities required by this plan. The City of Southgate retains the right to enter property and perform the necessary maintenance of the Southgate Taco Bell SWMS if Kissemkone, LLC fails to perform the required maintenance activities.

To ensure that the Southgate Taco Bell SWMS is maintained in perpetuity, the map of the physical limits of the storm water management system (Exhibit A), this plan (Exhibit B), the resolution attached as Exhibit C, and the maintenance agreement between the City of Southgate and the property owner will be recorded with the Wayne County Register of Deeds. Upon recording, a copy of the recorded documents will be provided to the County.

D. Long-Term Maintenance Plan and Schedule

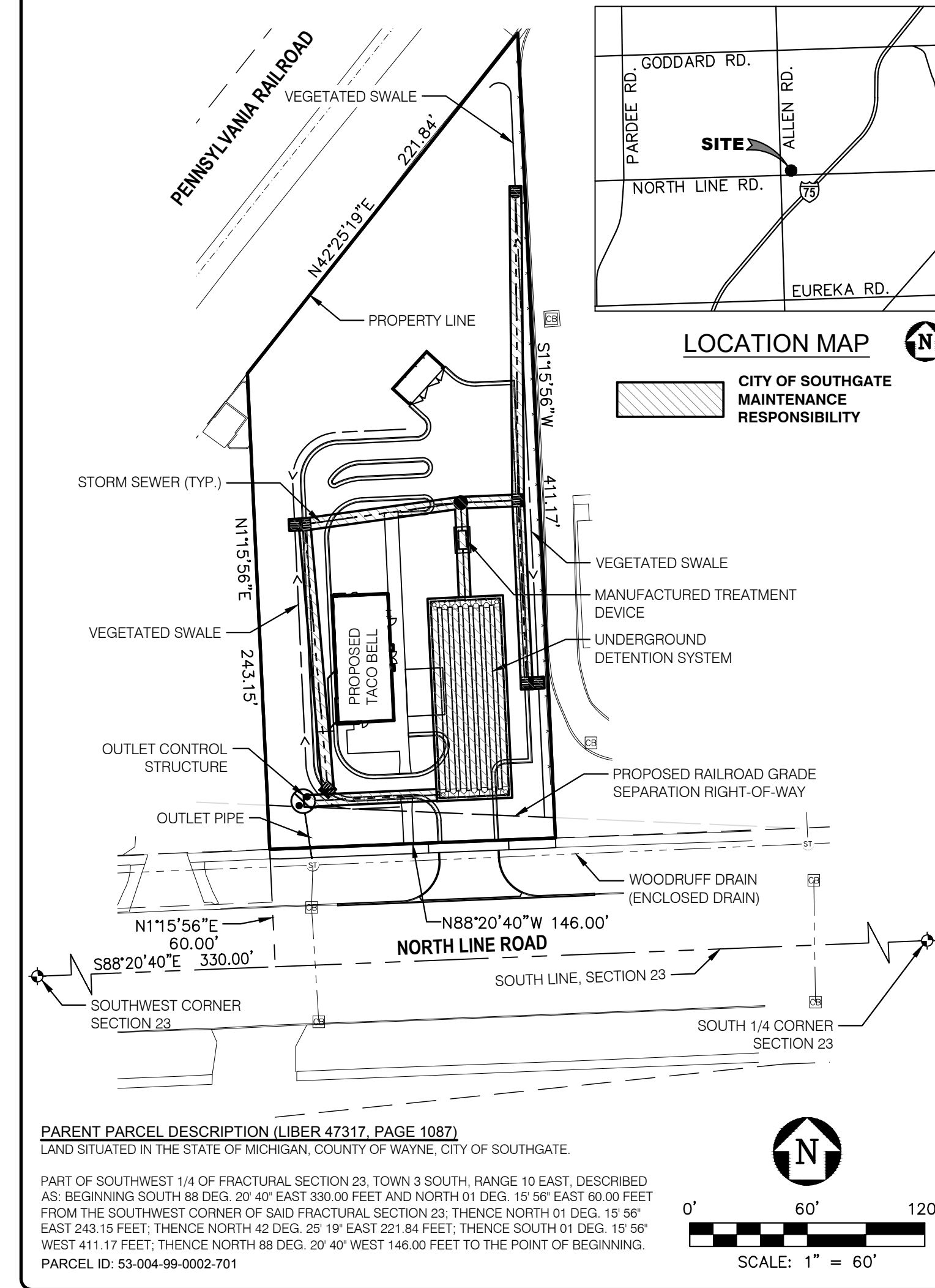
Table 1 identifies the maintenance activities to be performed, organized by category (monitoring/inspections, preventative maintenance and remedial actions). Table 1 also identifies site-specific work needed to ensure that the storm water management system functions properly as designed.

TABLE 1 STORM WATER MANAGEMENT SYSTEM LONG-TERM MAINTENANCE SCHEDULE						
MAINTENANCE ACTIVITIES	Storm Collection System (Sewers, Swales, Catch Basins, Manholes)	Manufactured Treatment Systems	Underground Detention System	Outlet Control Structure & Outlet Pipes	Pavement Areas	FREQUENCY
Monitoring/Inspection						
Inspect for Sediment Accumulation/Clogging	X	X	X	X	X	Annually
Inspect For Floatables, Dead Vegetation & Debris	X	X	X	X	X	Annually & After Major Events
Inspect For Erosion And Integrity of System	X	X	X	X	X	Annually & After Major Events
Inspect All Components During Wet weather & Compare to As-Built Plans	X	X	X	X	X	Annually
Ensure Maintenance Access Remain Open/Clear	X	X	X	X	X	Annually
Preventative Maintenance						
Remove Accumulated sediments*	X	X	X	X	X	As Needed (See Note Below)
Remove Floatables, Dead Vegetation & Debris	X	X	X	X	X	As Needed
Sweeping of Paved Surfaces / Clean Oil Spills					X	As Needed / Immediately
Remedial Actions						
Repair/Stabilize Areas of Erosion	X	X	X	X	X	As Needed
Replace Dead Plantings & Reseed Bare Areas	X					As Needed
Structural Repairs	X	X	X	X	X	As Needed
Make Adjustments/Repairs to Ensure Proper Functioning	X	X	X	X	X	As Needed

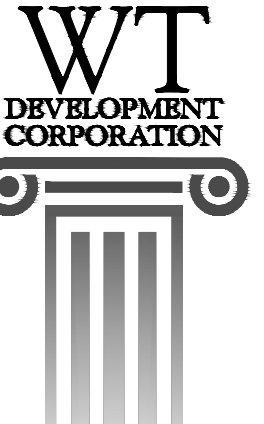
NOTE: *Manufactured Treatment Systems and Underground Detention System to be cleaned according to the manufacturer's recommendations; at a minimum, whenever sediments accumulate to a depth of 6-12 inches, or if sediment resuspension is observed.

PROPERTY: Southgate Taco Bell 19578 North Line Road Southgate, MI 48195	PROPERTY OWNER: Kissemkone, LLC 25467 Avondale Dearborn Heights, MI 48125 Contact: Jason Saad Phone: 248-308-3462	ENGINEER: LANDTECH Surveying & Engineering 1275 McGregor Way Grawn, MI 49637 Phone: (231) 943-0050 Fax: (231) 943-0051	DATE: 05 / 05 / 2018 SHEET 1 OF 1
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**EXHIBIT A
PHYSICAL LIMITS OF STORM WATER MANAGEMENT SYSTEM**



Project: SOUTHGATE TACO BELL ENTITY NO. 445209 19578 NORTH LINE ROAD SOUTHGATE, MI 48195 Sheet 1 of 1	Job: 1633703 Date: 02/26/2018 Scale: AS NOTED Drawn: JWU CHK'd: MTM Rev'd:	LANDTECH PROFESSIONAL SURVEYING & ENGINEERING 18101 WILLOW TRAIL NE, FRUITLAND, MI 48150 231-943-0050 ph 231-943-0051 fax 877-528-LAND toll free www.landtechps.com www.towersurveyors.com
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WT DEVELOPMENT CORPORATION
10223 E. Cherry Bend Rd., Ste. A
Traverse City, Michigan, 49684
Contact: Bill Becker, President
Phone: (231) 922-9250
Fax: (231) 922-9257
PROJECT CONSULTANT

- △ ELEC. ROUTE/MH PER DTE 08.06.18
- △ ADA PWMT TYPE 08.13.18
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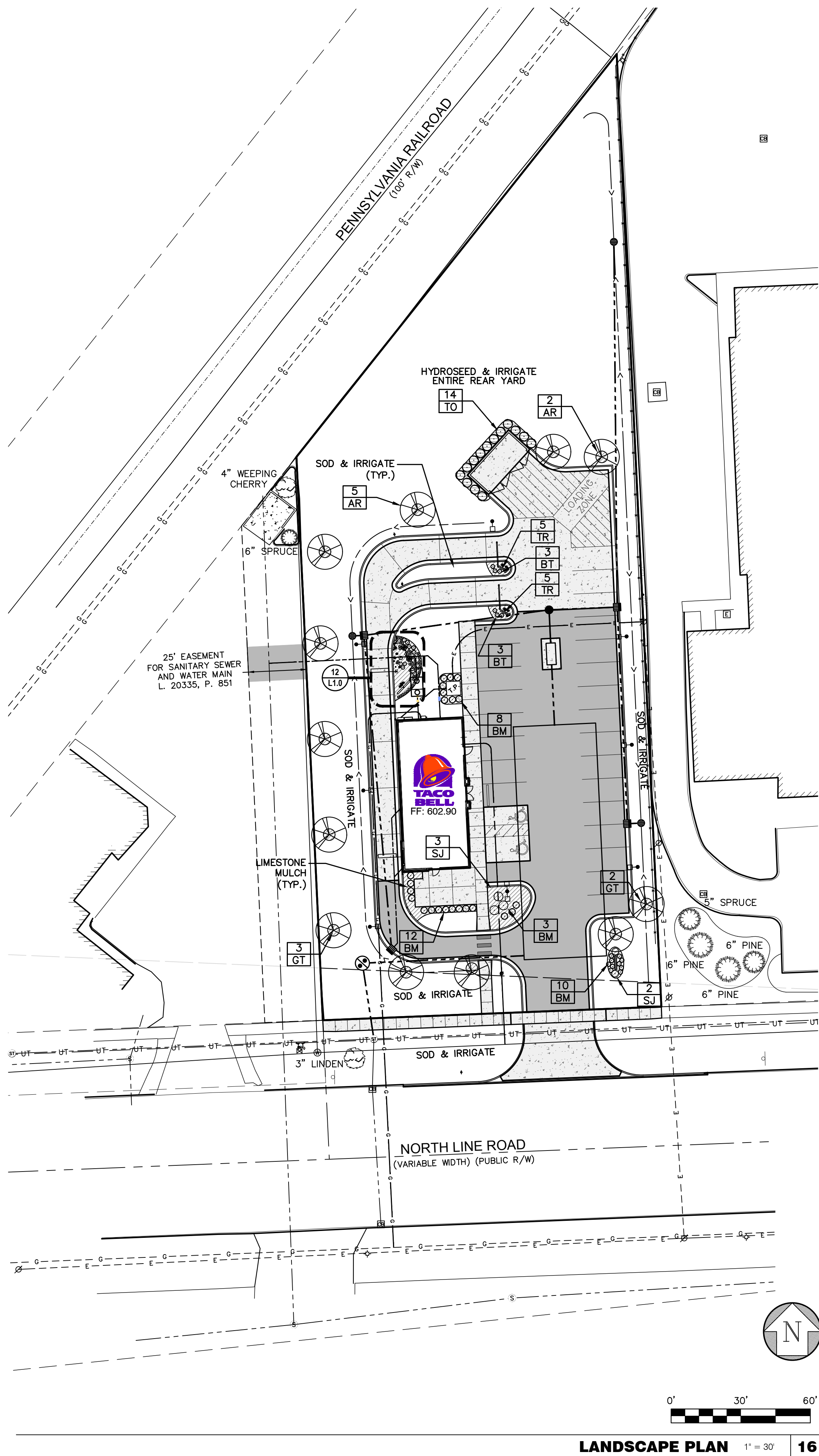
ISSUE DATE: 06.19.2018
BUILDING TYPE: EXPLORER LITE
PLAN VERSION: MEDIUM 40
SITE NUMBER: 312529
ENTITY NUMBER: 445209

TACO BELL
19578 NORTH LINE ROAD
SOUTHGATE, MI 48195



**STORM WATER
MANAGEMENT
EXHIBITS**

C6.5



PROPERTY OWNER/APPLICANT

OWNER: KISSEMKONE, LLC
 25467 AVONDALE
 DEARBORN HEIGHTS, MI 48125
 PHONE: (949) 863-4500

APPLICANT: TACO BELL OF AMERICA
 1 GLEN BELL WAY
 IRVINE, CA 92618
 PHONE: (949) 863-4500

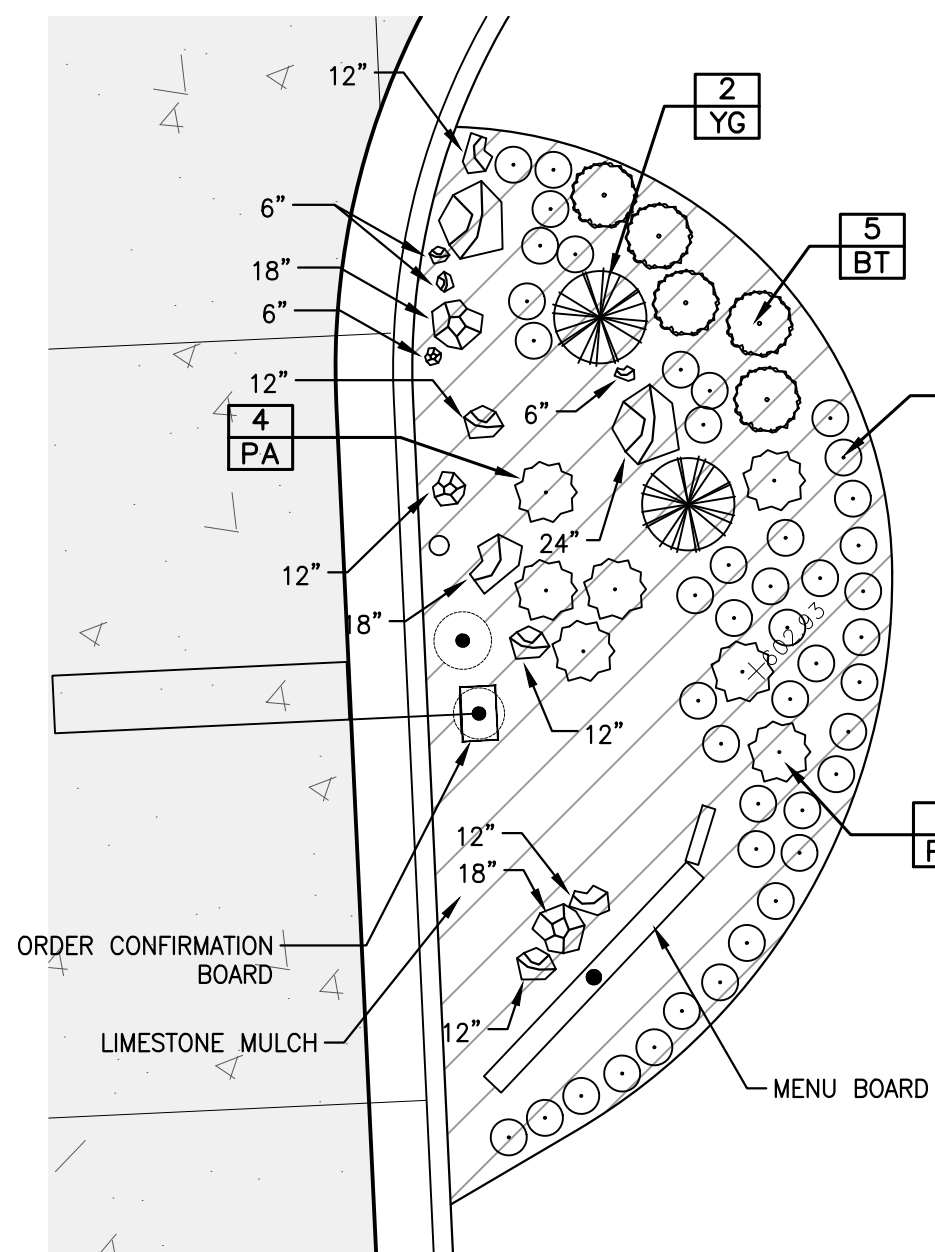
NET LAND AREA: 1.096 ACRES
 OPEN SPACE PERCENTAGE: 63%

PROJECT INFORMATION

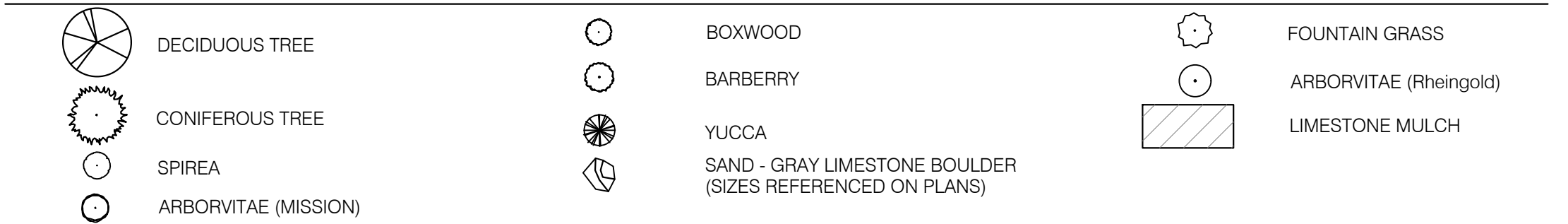
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NOT USED

10



QTY.	KEY	SCIENTIFIC NAME	COMMON NAME	SIZE	SPACING
7	AR	Acer Rubrum 'October Glory'	Red Maple	2 1/2" Cal.	30' O.C. Max.
5	GT	Gleditsia triacanthos var. inermis 'Skyline'	Thornless Honeylocust	2 1/2" Cal.	30' O.C. Max.
33	BM	Buxus microphylla 'Green Velvet'	Green Velvet Boxwood	30" Ht./30" Spread	36" O.C.
7	PA	Pennisetum alopecuroides 'Little Bunny'	Little Bunny Fountain Grass	3 Gal. Cont., 18" Ht.	Random
11	BT	Berberis thunbergii f. atropurpurea 'Atropurpurea Nana'	Japanese Barberry	30" Ht./30" Spread	Random
2	YG	Yucca glauca	Soapweed	5 Gal. Cont.	Random
53	TR	Thuja occidentalis 'Rheingold'	American Arborvitae	18" Ht./18" Spread	2' O.C.
5	SJ	Spiraea japonica 'Froebelii'	Japanese Spirea	24" Ht./24" Spread	Random
14	TO	Thuja occidentalis 'Techny'	Mission Arborvitae	5' Ht./36" Spread	4'-6" O.C.



PLANTING SCHEDULE

1

LAWN IRRIGATION SYSTEM

DESCRIPTION

PROVIDE AN AUTOMATICALLY CONTROLLED UNDERGROUND LAWN IRRIGATION SYSTEM, COMPLETE, INCLUDING PIPING, BACKFLOW PREVENTER, SPRINKLER HEADS, VALVES, CONTROLS, CONTROL WIRING, FITTINGS, ELECTRICAL CONNECTIONS AND NECESSARY ACCESSORIES.

SYSTEM REQUIREMENTS

FULL AND COMPLETE COVERAGE IS REQUIRED. PROVIDE DESIGN FOR A COMPLETE LAWN IRRIGATION SYSTEM TO SPRINKLE THE ENTIRE PARCEL INCLUDING ALL PLANTER BEDS AND RIGHT-OF-WAY GREENBELTS WITHOUT OVERTHROW ON ROADWAYS, SIDEWALKS, WINDOW WELLS, OR BUILDINGS AND TO PROTECT TREES FROM CLOSE HIGH SPRAY VELOCITY.

SUBMITTALS

COMPLETE DETAILED LAYOUT SHOP DRAWINGS AND DESIGN CALCULATIONS COVERING DESIGN OF SYSTEM SHOWING PIPE SIZES AND LENGTHS; FITTINGS, LOCATIONS, TYPES AND SIZES OF SPRINKLER HEADS; CONTROLS; BACKFLOW PREVENTERS; VALVES; AND CONNECTIONS TO EXISTING SERVICES. DO NOT START WORK BEFORE FINAL SHOP DRAWING APPROVAL. OPERATION AND MAINTENANCE MANUAL THAT INCLUDES MANUFACTURER'S LITERATURE AND DATA FOR INSTALLED EQUIPMENT REPRODUCIBLE "AS-BUILT" DRAWINGS.

EXECUTION

AN ADEQUATELY SIZED COMMERCIAL GRADE CONTROLLER SHALL BE PROVIDED AND MOUNTED IN THE MECHANICAL ROOM.

PIPING

ALLOW A MINIMUM OF 3 INCHES BETWEEN PARALLEL PIPES IN THE SAME TRENCH. HOLD PIPE SECURELY IN PLACE WHILE JOINT IS BEING MADE. INSTALL SPRINKLER LINES TO AVOID STORM SEWER, SANITARY SEWER, WATER AND GAS LINES OR OTHER UTILITIES, ALL OF WHICH HAVE RIGHT OF WAY.

CLEAN INTERIOR OF PIPE OF FOREIGN MATTER BEFORE INSTALLATION. KEEP PIPE CLEAN DURING LAYING OPERATIONS BY MEANS OF PLUGS OR OTHER METHODS. WHEN WORK IS NOT IN PROGRESS, SECURELY CLOSE OPEN ENDS OF PIPE AND FITTINGS TO PREVENT WATER, EARTH, OR OTHER SUBSTANCES FROM ENTERING. CONTROL VALVES SHALL NEVER BE LESS THAN 3 INCHES BELOW FINISHED GRADE.

EXISTING SIDEWALKS AND CURBS SHALL NOT BE CUT DURING TRENCHING AND INSTALLATION OF PIPE. CONDUITS FOR IRRIGATION SHALL BE INSTALLED BY EXCAVATING CONTRACTOR. REPAIR OR REPLACE ANY CONCRETE THAT CRACKS, DUE TO SETTLING, DURING THE GUARANTEE PERIOD. CLOSE PIPE OPENINGS WITH CAPS OR PLUGS DURING INSTALLATION. TIGHTLY COVER AND PROTECT FIXTURES AND EQUIPMENT AGAINST DIRT, WATER AND CHEMICAL OR MECHANICAL INJURY. AT COMPLETION OF ALL WORK THOROUGHLY CLEAN FIXTURES, EXPOSED MATERIALS AND EQUIPMENT.

SPRINKLERS AND QUICK COUPLERS

PLACE PART-CIRCLE ROTARY SPRINKLER HEADS NO MORE THAN 6 INCHES FROM EDGE, OF AND FLUSH WITH TOP OF ADJACENT WALKS, HEADER BOARDS, CURBS, AND MOWING APRONS, OR PAVED AREAS AT TIME OF INSTALLATION. INSTALL ALL SHRUB SPRAYS, SPRINKLERS AND QUICK COUPLERS ON SWING JOINTS AS DETAILED ON PLANS. SET SHRUB HEADS 8 INCHES ABOVE GRADE AND 1 FOOT FROM EDGE OF CURB OR PAVEMENT. PLACE ADJACENT TO WALLS.

CONTROL WIRING

WIRING FROM MASTER CONTROLLERS TO SATELLITES SHALL BE LOCATED IN TRENCH WITH NEW IRRIGATION LINES. WIRING BUNDLES LOCATED WITH PIPING SHALL BE SET WITH TOP OF THE BUNDLE BELOW TOP OF THE PIPE. NO TWO WIRES IN ANY BUNDLE SHALL BE OF THE SAME COLOR.

VALVES

NO VALVES SHALL BE SET UNDER ROADS, PAVEMENT OR WALKS. CLEAN INTERIOR OF VALVES OF FOREIGN MATTER BEFORE INSTALLATION. SET VALVE BOX COVER FLUSH WITH FINISHED GRADE.

INSPECTIONS, TESTING, AND FLUSHING

IRRIGATION CONTRACTOR SHALL BE RESPONSIBLE FOR ALL INSPECTIONS AND TESTING OF SYSTEM. FLUSHING: FLUSH SYSTEM WITH A MINIMUM OF 150 PERCENT OF OPERATING FLOW PASSING THROUGH EACH PIPE. FLUSH LINES BEFORE INSTALLING SPRINKLER HEADS AND QUICK COUPLERS. OPERATION TEST: UPON COMPLETION OF THE FINAL ADJUSTMENT OF THE SPRINKLER HEADS TO PERMANENT LEVEL AT GROUND SURFACE, TEST EACH SPRINKLER SECTION BY THE PAN TEST AND VISUAL TEST TO INDICATE A UNIFORM DISTRIBUTION WITHIN ANY ONE SPRINKLER HEAD AREA AND OVER THE ENTIRE AREA. OPERATE THE ENTIRE INSTALLATION TO DEMONSTRATE THE COMPLETE AND SUCCESSFUL OPERATION OF ALL EQUIPMENT.

IRRIGATION SPECIFICATIONS

8

GENERAL

PLANT MATERIAL shall have a habit of growth that is normal for the species and shall be sound, healthy, vigorous, and free from insect pests. They shall be equal to or exceed the measurements specified in the Plant Schedules. Requirement for measurements, branching, and grading quality of plants in the Plant Schedules generally follow the Code of Standard currently recommended by the American Association of Nurserymen, Inc. in the American Standard for Nursery Stock. When plants of a specified kind or size are not available, substitutions may be made upon request by the contractor, if approved by project engineer.

MATERIALS

MULCH shall be limestone mulch to be spread 2" thick over all planting beds. (6" thick in front greenbelt only)

NON-SELECTIVE HERBICIDE: Apply one application of non-select herbicide before the installation of the turf and wildflower planting beds. Follow the manufacturer's directions and rates for application.

FERTILIZER: Commercial fertilizer for turf installation shall be complete fertilizer, parts of which are derived from organic sources and shall be of the following composition by weight: 19% organic base nitrogen, 19% phosphoric acid, 19% potash. Mixture having small deviations from above will be considered subject to Landscape Architect's approval. Deliver to site in organic sealed standard sized bags showing weight analysis and name of manufacturer.

FERTILIZER FOR LANDSCAPE PLANTS AND PERENNIALS: Mag-Am super-phosphate 0-0-60 spread in perennial beds at 6#/1000 S.F. Add root packs to all trees and shrubs as per manufacturer's recommendations.

SOD: Shall be nursery grown as classified in the TPI Guideline Specification for Turfgrass Sodding. Quality shall conform to TPI Guideline specifications for sodding.

SOIL AMENITIES: Add Peat Moss, vermiculite, and malorganite to perennial beds. If sandy soil exists use more peat moss than vermiculite.

TOPSOIL: Topsoil is to be free of all stones, bricks, tree stumps, roots, clay lumps, weeds and all impurities. Topsoil to be mixed with organic material.

WEED BARRIER: Provide 2 oz. non-woven geotextile fabric in all planting beds, overlapping 3" minimum. Secure according to manufacturer.

LANDSCAPE EDGING: Joined metal edging, professional black coil edging, or mini-trench edging.

EXECUTION

Sod shall be placed tightly against each other so that no open joints are apparent. Sod shall be placed without stretching. Joints between adjacent rows shall be staggered at least 1 ft. at edge of walks and drives, sod shall have same finish grade as surfaced area. At curbs, sod shall match top of curb. Sod shall be watered and compressed into underlying soil by rolling. Initial watering and rolling shall provide firm contact and bond between sod and underlying soil. Sod shall be fertilized following installation.

LANDSCAPE SPECIFICATIONS

3

1. A full-coverage irrigation system is proposed for watering all plant materials.
2. Any areas on adjacent lots that have been disturbed during construction, including parkway between street and property line must be repaired and reseeded as part of Landscape Contract.
3. Landscape areas not devoted to planting beds and paving shall be sodded.
4. All plant material shall be in natural form (i.e. not sheered).
5. All topsoil provided and spread by Grading Contractor.
6. Miss Dig to be contacted before installation begins.
7. Plant material in conflict with utilities shall be relocated per project engineer approval.
8. This plan subject to approval by all governing bodies.
9. Contractor responsible to field verify all measurements.
10. Owner agrees to seasonal maintenance program and will replace all diseased, dead, or damaged plants, replenish mulch, control weeds, fertilize, and prune beginning upon completion of landscaping.

LANDSCAPE NOTES

4



Professional Surveying & Engineering
 P.O. Box 193
 1275 McGregor Way, Grawn, MI 49637
 PH: 231.943.0050 FAX: 231.943.0051
 www.landtechps.com



WT Development Corporation
 10223 E. Cherry Bend Rd., Ste. A
 Traverse City, Michigan, 49684

Contact: Bill Becker, President
 Phone: (231) 922-9250
 Fax: (231) 922-9257

PROJECT CONSULTANT

ELEC. ROUTE/MH PER DTE 08.06.18

ADA PWMT TYPE 08.13.18

ISSUE DATE: 06.19.2018

BUILDING TYPE: EXPLORER LITE

PLAN VERSION: MEDIUM 40

SITE NUMBER: 312529

ENTITY NUMBER: 445209

TACO BELL

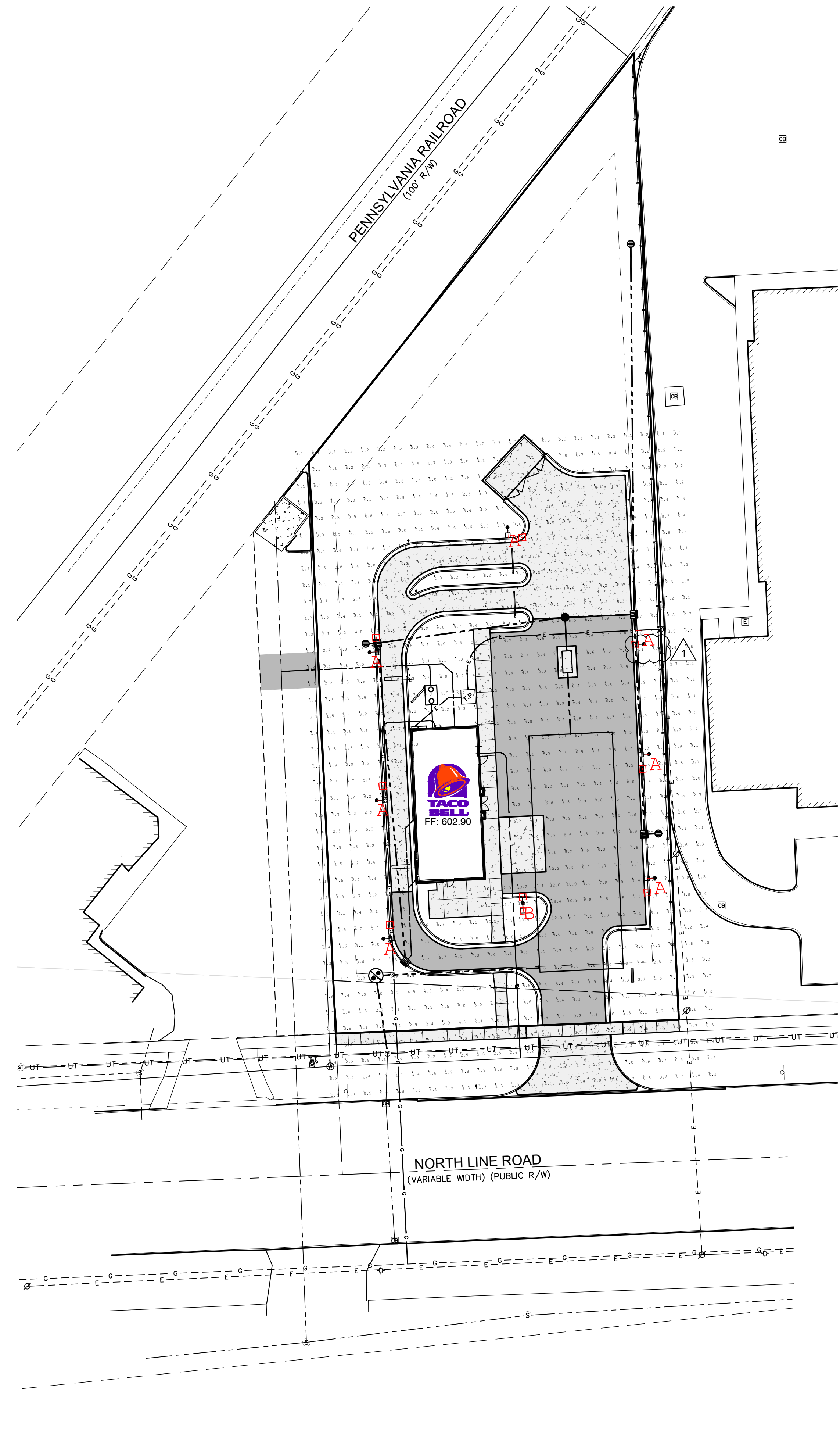
19578 NORTH LINE ROAD
 SOUTHGATE, MI 48195



LANDSCAPE PLAN

L1.0

PLANT DATE: 08.13.2018



PROPERTY OWNER/APPLICANT
 OWNER: KISSEMKONE, LLC
 25467 AVONDALE
 DEARBORN HEIGHTS, MI 48125
 PHONE:
 APPLICANT: TACO BELL OF AMERICA
 1 GLEN BELL WAY
 IRVINE, CA 92618
 PHONE: (949) 863-4500
 NET LAND AREA: 1.096 ACRES
 OPEN SPACE PERCENTAGE: 63%

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PROJECT INFORMATION 1

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 Fax: (231) 922-9257
PROJECT CONSULTANT

- △ ELEC. ROUTE/MH PER DTE 08.06.18
- △ ADA PWMT TYPE 08.13.18
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TACO BELL
 19578 NORTH LINE ROAD
 SOUTHGATE, MI 48195



ILLUMINATION PLAN

11.0

PLOT DATE: 08.13.2018

Luminaire Schedule			
Symbol	Qty	Label	Description
⊠	7	A	XALM-FT-LED-HO-40 MOUNTED AT 25'
⊠	1	B	XALM-FT-LED-HO-40 MOUNTED AT 25'

Calculation Summary					
Label	Avg	Max	Min	Avg/Min	Max/Min
-	N.A.	N.A.	N.A.	N.A.	N.A.
DRIVE THRU SURFACE	6.14	10.6	3.1	1.98	3.42
EXTENDED	2.18	6.9	0.1	21.80	69.00
PARKING LOT SURFACE	7.05	13.4	3.8	1.86	3.53

TACO BELL
 BRANDON TWP., MI
 PREPARED BY: DAN CLANCY
 CAPITOL LIGHT
 860-520-2395
 daniel.clancy@capitolight.com
 MARCH 15, 2018