

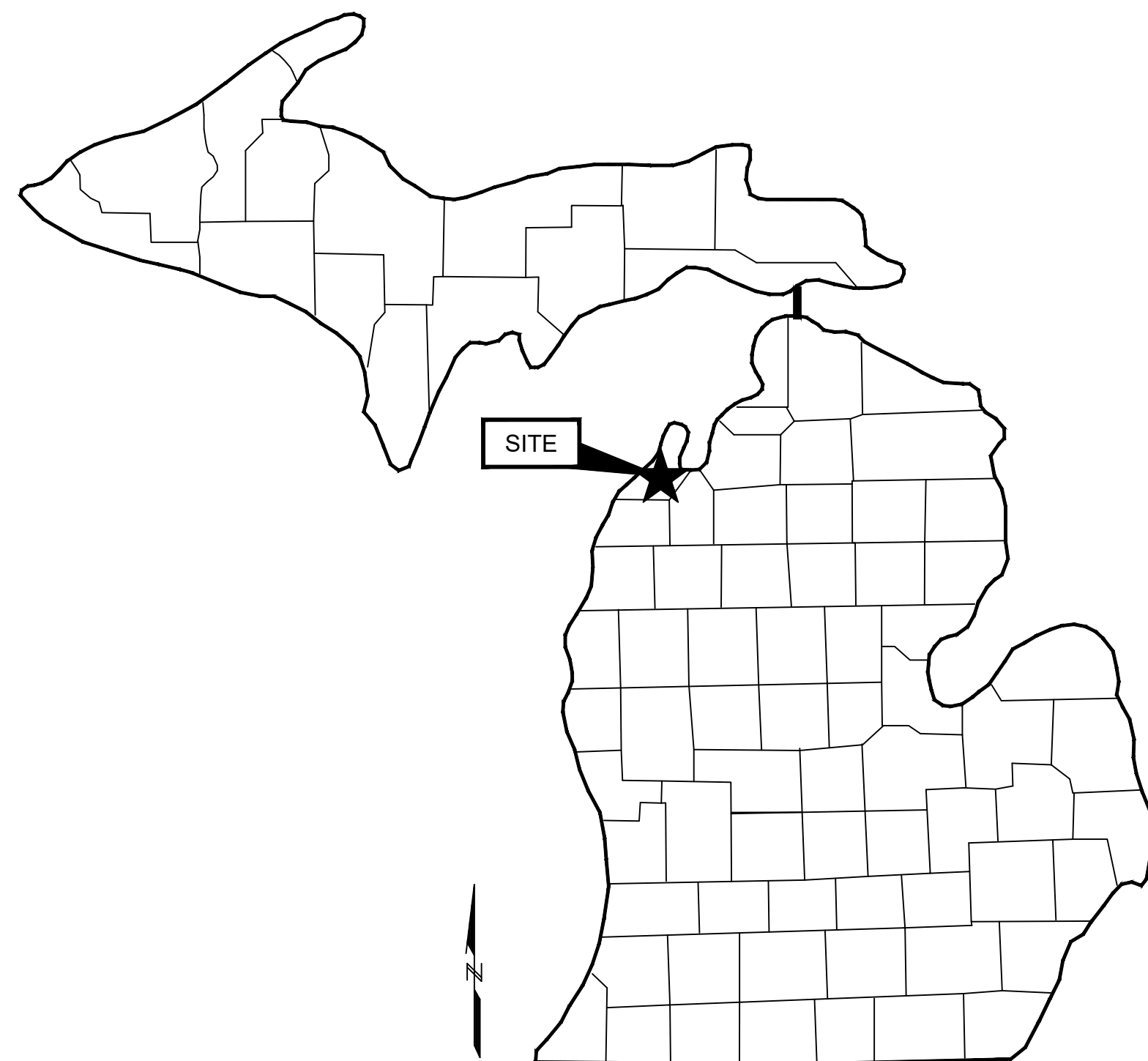
SOUTH BAR LAKE DRAIN DRAINAGE DISTRICT SOUTH BAR LAKE DRAIN

SECTION 24, TOWN 28 NORTH, RANGE 15 WEST,
VILLAGE OF EMPIRE, LEELANAU COUNTY, MICHIGAN

STEVEN CHRISTENSEN
LEELANAU COUNTY DRAIN COMMISSIONER

SOUTH BAR LAKE DRAIN
A PART OF SECTION 24, EMPIRE TWP,
T28N, R15W, LEELANAU COUNTY, MICHIGAN

COVER SHEET

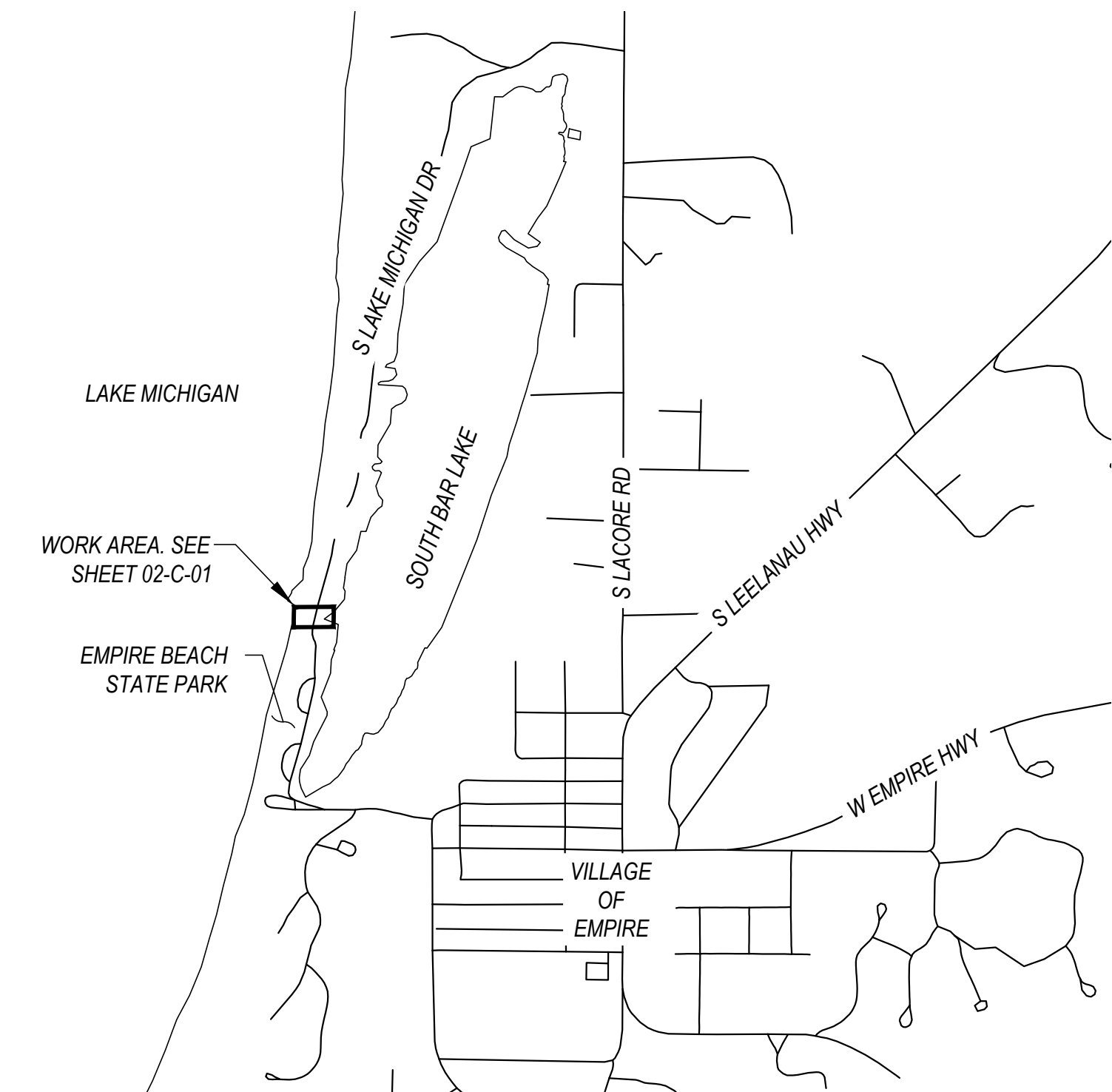


STATE MAP
NOT TO SCALE



SOURCE:
BING MAPS

COUNTY MAP
NOT TO SCALE



SITE LOCATION MAP
NOT TO SCALE

PROJECT & UTILITY CONTACTS

OWNER
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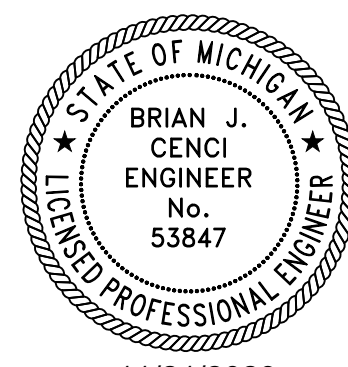
SHEET LIST

SHEET NO.	REFERENCE NO.	DESCRIPTION
1	COVER SHEET	01-G-01
2	GENERAL NOTES & LEGEND	01-G-02
3	SESC PLAN	01-G-03
4	TRAFFIC CONTROL & CONSTRUCTION STAGING AREA	01-G-04
5	PLAN & PROFILE	02-C-01
6	DETAILS	99-D-1
7	DETAILS	99-D-02
8	SESC DETAILS	99-D-03

ENGINEER OF RECORD:

Brian J. Cenci

BRIAN J. CENCI, P.E. #53847



11/21/2023

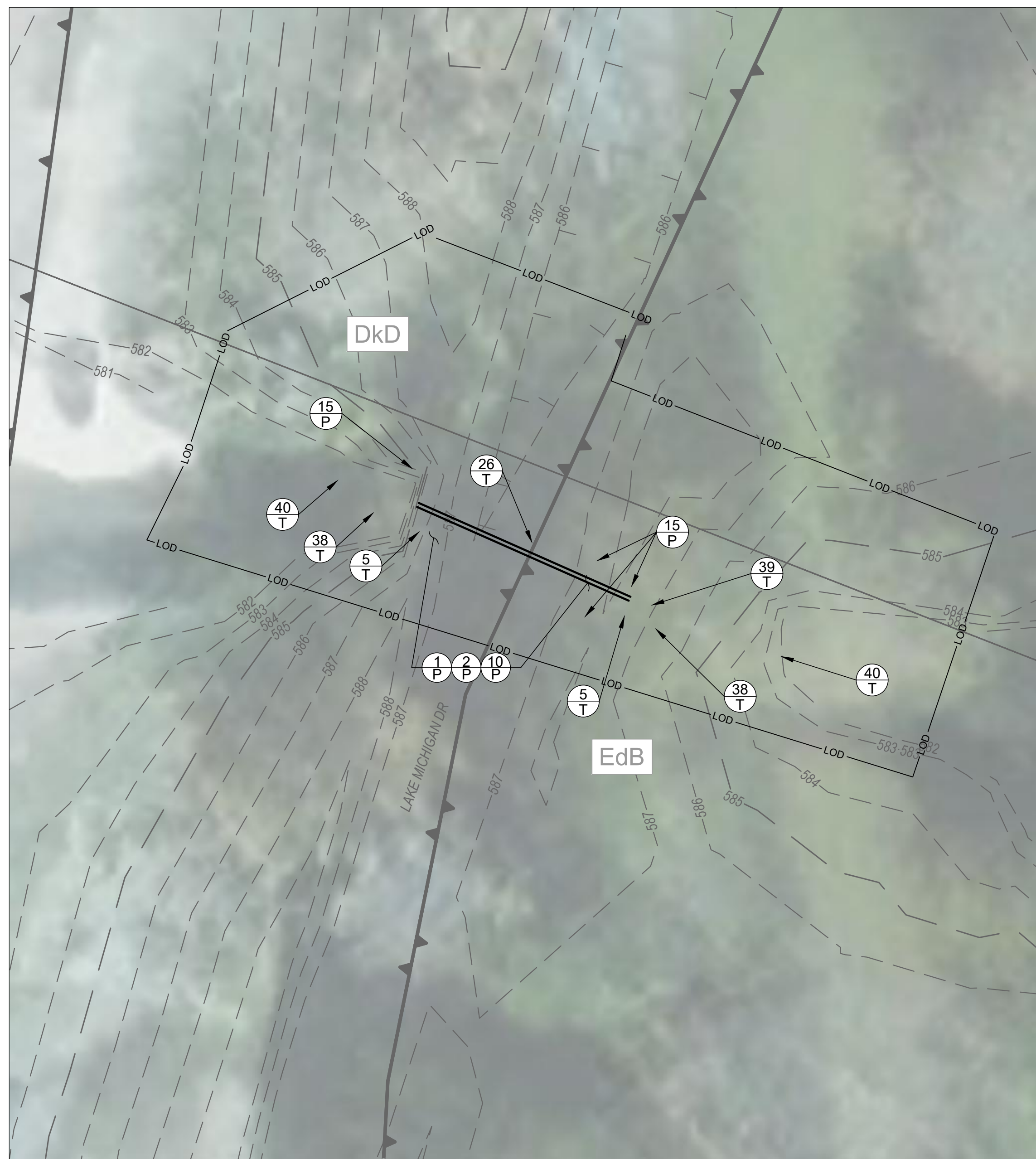
DATE

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Attention: 1"
0
If this scale bar does not measure 1" then drawing is not original scale.

RELEASE #	DATE
1	11/21/2023
DESCRIPTION	
BID SET	
Designed By: MJW	
Checked By: BJC	
Drawn By: MJW	
Approved By: BJC	
GEI PROJECT: 2003339	
DWG. NO. 01-G-01	
SHEET #1	
ARCHIVE #	

B:\Working\LEELANAU COUNTY DRAIN COMMISSIONER\2003339 South Bar Lake Drain\00_CAD\Design\Sheets\Construction Plan Set\SSC-PLAN.dwg 11/21/2023 3:56:14 PM WALTON, MITCH_GD_Design-Civil_Large-Format.dwg



SOIL EROSION AND SEDIMENTATION CONTROL NOTES

- TEMPORARY MEASURES SHALL BE INSTALLED PRIOR TO OR UPON COMMENCEMENT OF EARTH CHANGE ACTIVITY AT EACH SITE.
- THE CONTRACTOR SHALL CONFORM TO SOIL EROSION AND SEDIMENTATION CONTROL ACT, PART 91 OF ACT 451 OF 1994 AND MUST PROVIDE NOTICE TO THE CEA PRIOR TO THE START OF CONSTRUCTION.
- THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT MEASURES ARE INSTALLED IN COMPLIANCE WITH THE MANUFACTURERS RECOMMENDATIONS, AND THE PLANS. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT THE SESC MEASURES ARE MONITORED AND MAINTAINED UNTIL ALL DISTURBED AREAS ARE STABILIZED AND TEMPORARY MEASURES ARE REMOVED. THE CONTRACTOR ACKNOWLEDGES THAT SESC MEASURES MAY NEED TO BE ADAPTED, ADJUSTED, OR ADDED BASED ON SITE CONDITIONS IN ORDER TO REMAIN IN COMPLIANCE WITH PART 91 REQUIREMENTS.
- ALL SOIL EROSION CONTROL MEASURES SHALL BE INSPECTED AND MAINTAINED DAILY BY THE CONTRACTOR. THE CONTRACTOR SHALL INSPECT AFTER EACH RAIN EVENT TO ENSURE PROPER MAINTENANCE OF THE SOIL EROSION CONTROL MEASURES. ANY DEFICIENCIES OR REPAIRS TO SOIL EROSION CONTROL MEASURES ARE TO BE CORRECTED IMMEDIATELY.
- THE CONTRACTOR SHALL INSTALL FINAL SOIL EROSION CONTROL MEASURES WITHIN 72 HOURS OF FINAL GRADE IN ANY AREA (GRADE LISTED ON PLANS) UNLESS SPECIFIED OTHERWISE BY ENGINEER. WEEKLY INSPECTIONS OF SEEDED AREAS SHALL BE COMPLETED TO VERIFY GRASS GROWTH. ANY AREAS NOT ESTABLISHED SHALL BE FERTILIZED, SOILS AMENDED AND RE-SEEDED AS NECESSARY. ALL COST FOR ESTABLISHMENT OF SEEDED AREAS SHALL BE INCLUDED IN THE UNIT BID PRICE FOR THE SPECIFIC SEEDING BEING INSTALLED.
- THE CONTRACTOR SHALL REMOVE TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROL MEASURES WITHIN 45 DAYS AFTER PERMANENT SOIL EROSION MEASURES ARE IN PLACE AND THE AREA IS STABILIZED ("STABILIZED" MEANS THE ESTABLISHMENT OF VEGETATION OR THE PROPER PLACEMENT, GRADING, OR COVERING OF SOIL TO ENSURE ITS RESISTANCE TO SOIL EROSION, SLIDING, OR OTHER EARTH MOVEMENT).
- REMOVAL OF TEMPORARY MEASURES IS THE RESPONSIBILITY OF THE CONTRACTOR.
- THE CONTRACTOR IS RESPONSIBLE FOR CLEANUP & RESTORATION INCLUDING PROGRESS CLEANING. PROGRESS CLEANING INCLUDES BUT IS NOT LIMITED TO REMOVAL OF WASTE MATERIALS, DEBRIS, RUBBISH, AND EXCESS SPOILS. COMPLETE LEVELING AND DAMAGE RESTORATION AT REGULAR INTERVALS DURING CONSTRUCTION.
- SEDIMENTS CAUSED BY ACCELERATED SOIL EROSION SHALL BE REMOVED FROM RUNOFF WATER BEFORE IT LEAVES THE SITE OF THE EARTH CHANGE.
- PLACE TURF ESTABLISHMENT ITEMS AS SOON AS POSSIBLE ON POTENTIAL ERODABLE SLOPES AS DIRECTED BY THE ENGINEER. CRITICAL DITCH GRADES SHALL BE PROTECTED WITH SOD OR SEED/MULCH OR MULCH BLANKET AS DIRECTED BY THE ENGINEER.
- IF NECESSARY A TEMPORARY CONTROL MEASURE SHALL BE DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF WATER AROUND, THROUGH OR FROM THE EARTH CHANGE AREA TO LIMIT WATER FLOW TO A NON-EROSIVE VELOCITY.
- MAINTAIN ON SITE OR HAVE READILY AVAILABLE SUFFICIENT OIL AND GREASE ABSORBING MATERIALS AND FLOTATION BOOMS TO CONTAIN AND CLEAN UP FUEL OR CHEMICAL SPILLS AND LEAKS. NO SPILLED CHEMICALS OR PETROLEUM OR VEHICULAR FLUIDS ARE TO COME INTO CONTACT WITH DRAINAGE DITCHES, WETLAND OR WATERS OF THE STATE.
- ALL SLOPES AND AREAS DISTURBED BY CONSTRUCTION SHALL BE GRADED AND THREE INCHES OF TOPSOIL APPLIED. EXISTING TOPSOIL MAY BE USED FOR RESTORATION OF THIS ACTIVITY. IF ADEQUATE TOPSOIL IS NOT AVAILABLE ON SITE THE CONTRACTOR SHALL PROVIDE THE TOPSOIL, APPROVED BY THE OWNER AND ENGINEER, AS NEEDED. THE AREA SHALL BE SEEDED, FERTILIZED, WATERED AND MAINTAINED UNTIL VEGETATION IS WELL ESTABLISHED. NOTE: FERTILIZER SHALL NOT BE USED WITHIN 50 FEET OF THE RIVER, LAKE OR STREAM AT THIS SITE. ANY AREAS DISTURBED FOR ANY REASON PRIOR TO FINAL ACCEPTANCE OF THE PROJECT WILL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
- THE CONTRACTOR WILL WATCH FOR WEATHER CHANGES THAT WILL CREATE EROSION CONDITIONS AND WILL APPLY EROSION CONTROL MEASURES BEFORE A STORM HITS THE SITE.
- STOCKPILES OF MATERIALS SHALL BE COVERED AND PROTECTED IN A MANNER TO PREVENT SILTATION OF SURROUNDING SITE OR EROSION FROM OCCURRING ON THE STOCKPILE.
- NO WORK THAT REQUIRES DEWATERING SHALL COMMENCE WITHOUT APPROVAL FROM THE ENGINEER. WATER DISCHARGED FROM DEWATERING SHALL NOT EXCEED 100 NTU.
- THE CONTRACTOR IS RESPONSIBLE FOR THE SESC PERMIT AT ANY SPOIL DEPOSIT LOCATIONS. LOCATIONS MUST BE APPROVED BEFORE DEPOSITION.
- THE DRAIN COMMISSIONER MAY ASSESS COST FOR SITE RESTORATION, SITE STABILIZATION, AND/OR RESTORE OR REPAIR OFF-SITE DAMAGES IF THE CONTRACTOR DOES NOT COMPLY WITH THEIR CONTRACT OR PART 91.
- DETAILED DRAWINGS AND SPECIFICATIONS ARE LOCATED IN THE MICHIGAN ASSOCIATION OF COUNTY DRAIN COMMISSIONERS SOILS EROSION AND SEDIMENTATION CONTROL AUTHORIZED PUBLIC AGENCY PROCEDURES MANUAL.
- MEASURES SHALL ONLY BE PAID FOR ONCE.

COMPLIANCE WITH PART 91 OF PA 451

- ALL CONTRACTORS AND SUBCONTRACTORS INVOLVED WITH AN EARTH DISTURBANCE ACTIVITY SHALL BE PROVIDED A COPY OF THIS SOIL EROSION CONTROL PLAN AND STRICTLY ADHERE TO ITS REQUIREMENTS.
- THE CONTRACTOR IS RESPONSIBLE TO INSTALL AND MAINTAIN APPLICABLE SOIL EROSION AND SEDIMENTATION CONTROL MEASURES IN ACCORDANCE WITH THE APPROVED PLANS PRIOR TO COMMENCEMENT OF CONSTRUCTION, MASS GRADING, OR STAGING WORK. THE CONTRACTOR SHALL CONFORM TO SOIL EROSION AND SEDIMENTATION CONTROL ACT, PART 91 OF ACT 451 OF 1994.
- INSPECTION BY A CERTIFIED STORM WATER OPERATOR FOR CONSTRUCTION SITES WILL TAKE PLACE WEEKLY AND AFTER EACH RAINFALL EVENT THAT PRODUCES RUNOFF FROM THE SITE. PROPER DOCUMENTATION OF THE INSPECTIONS WILL BE MAINTAINED AS PER PART 91 OF PA 451 OF 1994.
- RESPOND IMMEDIATELY TO STORMWATER OPERATOR AND/OR SOIL EROSION AND SEDIMENTATION CONTROL INSPECTOR CONCERNS. MAKE CORRECTIVE MEASURES AS REQUIRED IMMEDIATELY.
- IF FOR ANY REASON THE OWNER IS FOUND TO BE IN VIOLATION OF PART 91 DUE TO CONTRACTOR'S NONCOMPLIANCE, THE CONTRACTOR AGREES TO PAY ALL FINES AND COSTS INCURRED BY THE OWNER INCLUDING ALL LEGAL COSTS IN THE DEFENSE OF THE OWNER.

PROJECT LEGAL DESCRIPTION

- PART OF SECTION 24, TOWNSHIP 28 NORTH, RANGE 15 WEST, VILLAGE OF EMPIRE, LEELANAU COUNTY, MICHIGAN

MAINTENANCE PROGRAM FOR SESC MEASURES

GENERAL MAINTENANCE

- TEMPORARY SESC MEASURES SHALL BE INSTALLED, MAINTAINED, AND REMOVED BY THE CONTRACTOR.
- TEMPORARY SESC MEASURES SHALL BE INSTALLED PRIOR TO OR UPON COMMENCEMENT OF ANY EARTH DISTURBANCE.
- TEMPORARY MEASURES MUST BE MAINTAINED AND IN PLACE UNTIL AREAS ARE PERMANENTLY STABILIZED.
- TEMPORARY SESC MEASURES SHALL BE REMOVED AT THE END OF THE PROJECT ONCE PERMANENT MEASURES ARE IN PLACE AND DISTURBED AREAS ARE STABILIZED.
- PERMANENT MEASURES SHALL BE INSTALLED AND MAINTAINED BY THE CONTRACTOR UNTIL FINAL PROJECT COMPLETION.
- DAILY MAINTENANCE IS THE CONTRACTORS RESPONSIBILITY.

SEEDING AND MULCHING

- INSPECT NEWLY SEEDED AREAS SUBSEQUENT TO ANTICIPATED GERMINATION DATE AND AFTER EACH SIGNIFICANT RAINFALL EVENT THAT PRODUCES RUNOFF UNTIL AREAS ARE STABILIZED AND TO CHECK FOR MOVEMENT OR EROSION.
- INSPECT RESTORED AREAS ROUTINELY AND AFTER EACH SIGNIFICANT RAINFALL EVENT TO CHECK FOR MOVEMENT OR EROSION UNTIL AREAS ARE STABILIZED. IF WASHOUTS OR EROSION OCCUR, REPAIR THE SURFACE, RE-SEED AND RE-MULCH. CONTINUE INSPECTIONS AS NECESSARY UNTIL VEGETATION IS FIRMLY ESTABLISHED.
- REPAIR ERODED AREAS, APPLYING SUPPLEMENTAL SEED, MULCH BLANKET, AND WATER AS NEEDED.
- IF SEED DOES NOT ESTABLISH, CONDUCT SOIL TESTS, AMEND SOILS AS NEEDED, AND REAPPLY SEED AND/OR MULCH BLANKET DURING THE RECOMMENDED GROWING SEASON.
- TO ASSIST IN THE ESTABLISHMENT OF NATIVE SPECIES, REMOVE UNWANTED COMPETING VEGETATION IN THE FIRST YEAR.
- MOWING DURING ESTABLISHMENT CAN BE USED PERIODICALLY TO DISCOURAGE WEEDS.
- WATER AREA FREQUENTLY UNTIL THICK VEGETATION HAS ESTABLISHED. THE CONTRACTOR MUST WATER UNTIL VEGETATION HAS ESTABLISHED.

ENERGY DISSIPATORS

- INSPECT ROUTINELY, BASED ON FLOW CONDITIONS, UNTIL ALL DISTURBED AREAS ARE STABILIZED.
- INSPECT AFTER MAJOR FLOOD EVENTS AND REMOVE SEDIMENT AND ACCUMULATED AS DESIGNED, MAKING ANY NEEDED ADJUSTMENTS.

SOIL BINDING POLYMERS

- APPLY EVERY TIME SEED IS PLACED
- VISUALLY INSPECT ALL AREAS WHERE THE POLYMER HAS BEEN APPLIED WITHOUT WALKING OR TRAVELING OVER THE AREA FOLLOWING EACH SIGNIFICANT PRECIPITATION OR WIND EVENT AND PRIOR TO EXPECTED EVENTS. REAPPLY IF SOIL AREAS INDICATED DISTURBANCE BY EROSION FORCES, OR IF DEEMED NECESSARY, REAPPLY IN CONJUNCTION WITH ADDITIONAL MANAGEMENT PRACTICES.
- REAPPLY IF TREATED AREA IS DISRUPTED OR SHOWS SIGNS OF DISTURBANCE FROM EROSION FORCES.

RIPRAP

- IF RIPRAP HAS BEEN DISPLACED AND THE GEOTEXTILE FABRIC IS DAMAGED DURING HIGH FLOW CONDITIONS OR FROM VANDALISM, REMOVE RIPRAP AND REPAIR GEOTEXTILE FABRIC BY ADDING ANOTHER LAYER OVERLAPPING THE DAMAGED AREA BY 2 FEET AND ANCHORING WITH PINS SPACED 3 FEET APART. REPLACE RIPRAP OVER GEOTEXTILE FABRIC.
- INSPECT FOLLOWING EACH PRECIPITATION THAT RESULTS IN RUNOFF AND CONFIRM EFFECTIVENESS, MAKE NECESSARY ADJUSTMENTS. EXPAND RIPRAP AREAS AS NEEDED.

DEWATERING

DISCHARGE BAG DEWATERING (TYP)

- CHECK PUMP DISCHARGE BAG FOR ANY HOLES OR NOTICEABLE DETERIORATION.
- INSPECT DEWATERING DISCHARGE POINTS DAILY FOR SIGNS OF SCOUR AND EROSION.
- DEWATERING DISCHARGE POINT TO BE PLACED AT A LOCATION APPROVED BY ENGINEER.
- DEWATERING DISCHARGE SHOULD BE VISIBLY CLEAR AND FREE OF SEDIMENT.

INLET PROTECTION

- THE SEDIMENT CONTROL DEVICE SHALL BE INSPECTED DAILY BY THE CONTRACTOR AND MAINTAINED A MINIMUM ONCE PER MONTH OR WITHIN THE 48 HOURS FOLLOWING A STORM EVENT. FILTER SHALL BE CLEANED IN A MANNER WHICH ENSURES THAT ALL SEDIMENT REMAINS ON SITE.
- THE FILTER SHALL BE REPLACED OR CLEANED WHEN THE BAG BECOMES HALF FULL.

TURBIDITY CURTAIN

- INSPECT CURTAIN DAILY AND MAKE REQUIRED ADJUSTMENTS TO ENSURE THAT ANCHORS, TIE-DOWNS, OR OTHER MECHANISMS ARE SUFFICIENTLY ISOLATING CONSTRUCTION ACTIVITIES FROM THE WATERBODY.

DUST CONTROL

- SWEEP ROADS DAILY OR SEVERAL TIMES A DAY SHOULD CONDITIONS PROVIDE.
- WATER DISTURBED SOILS TO MITIGATE DUST CREATION DAILY OR SEVERAL TIMES A DAY SHOULD CONDITIONS PROVIDE.

CONTINUED MAINTENANCE PLAN

- THE CONTRACTOR SHALL MAINTAIN ALL PERMANENT SESC MEASURES FOR A PERIOD OF 1 YEAR FOLLOWING PROJECT COMPLETION, THIS INCLUDES VEGETATION ESTABLISHMENT.

SOIL TYPE LEGEND

SYMBOL	SOIL DESCRIPTION
DkD	DEER PARK SAND, 6 TO 18 PERCENT SLOPES
EdB	EASTPORT SAND, 0 TO 6 PERCENT SLOPES
W	WATER

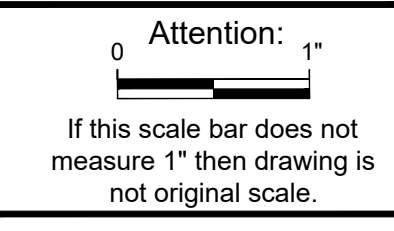
SOIL EROSION & SEDIMENTATION CONTROL TABLE

KEY	DESCRIPTION
1 P	SEEDING
2 P	MULCH BLANKET
5 T	SILT FENCE/STRAW WATTLE
10 P	SOIL BINDING POLYMERS
15 P	RIPRAP
26 T	DUST CONTROL
38 T	SHEET PILING
39 T	DEWATERING
40 T	TURBIDITY CURTAIN
TOTAL LIMITS OF DISTURBANCE = 0.08 AC	

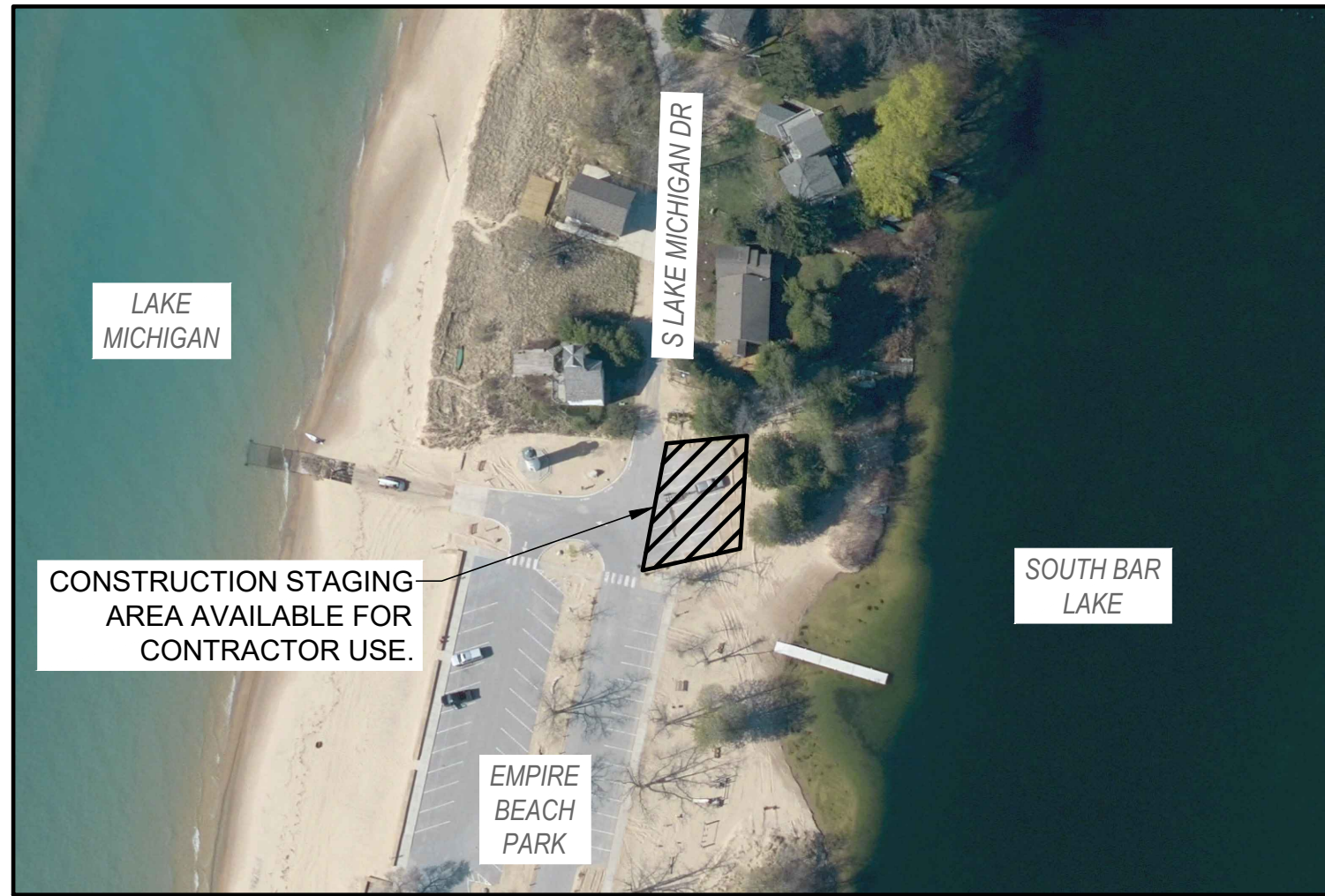
APPROXIMATE CONSTRUCTION SCHEDULE FOR SESC MEASURES*

	WEEK 1
INSTALL PERIMETER SILT FENCE	█
MAINTAIN PERIMETER SILT FENCE	█
INSTALL TURBIDITY CURTAIN	█
INSTALL SHEETPIILING	█
DEWATERING & PUMP DISCHARGE TREATMENT	█
INSTALL 8" D.I. DISCHARGE LINE	█
REMOVE EXISTING AND INSTALL NEW CULVERT	█
BACKFILL & ROAD RESTORATION	█
SEEDING & MULCHING	█
REMOVE SHEETPIILING	█
REMOVE TURBIDITY CURTAIN	█
FINAL SITE STABILIZATION	█
REMOVE PERIMETER SILT FENCING	█

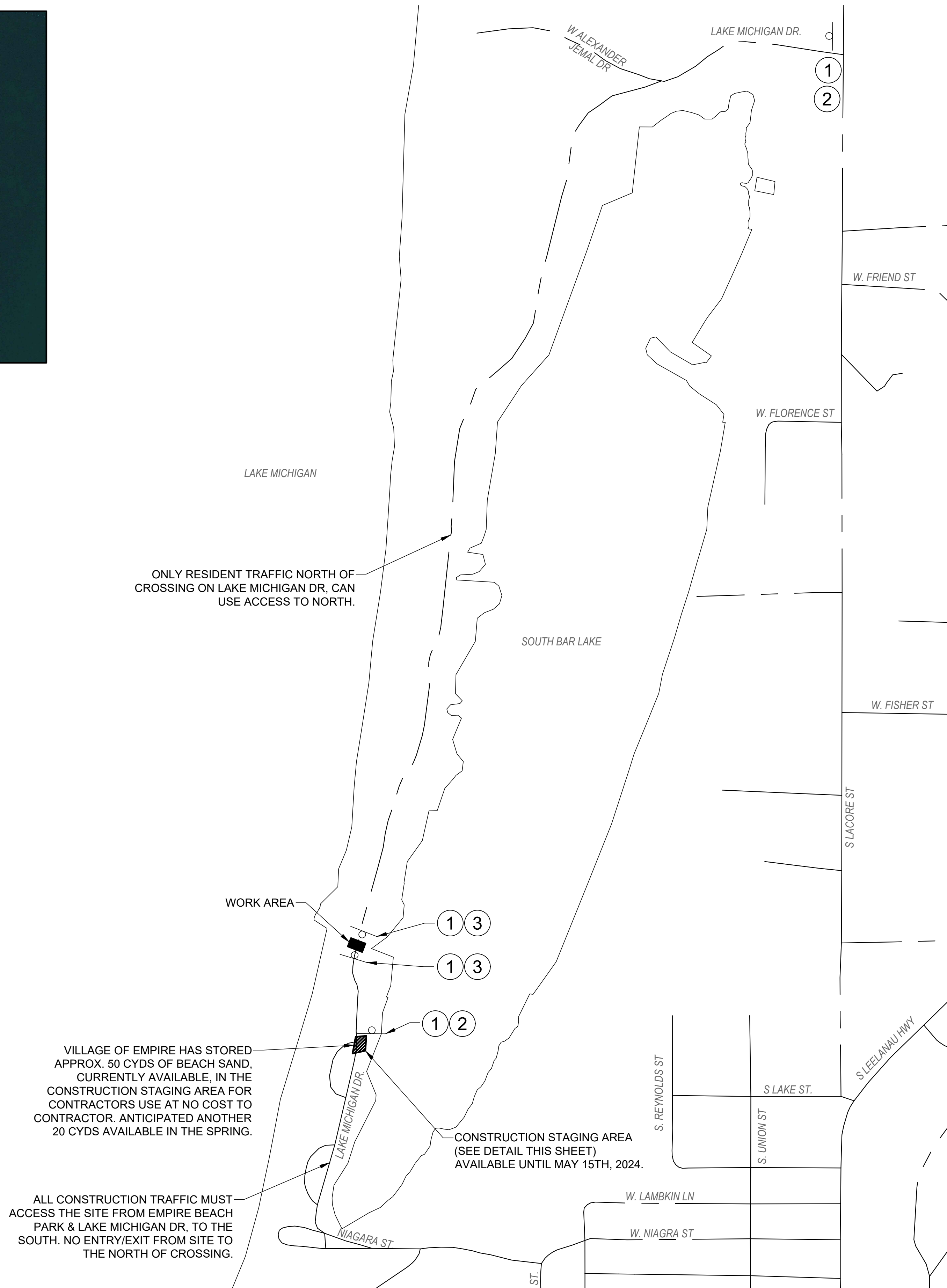
*NOTE: CALENDAR DATES MAY VARY BASED ON CONTRACTOR SCHEDULE



RELEASE #	DATE
1	11/21/2023
DESCRIPTION	
BID SET	
DESIGNED BY: MJW	
CHECKED BY: BJC	
DRAWN BY: MJW	
APPROVED BY: BJC	
GEI PROJECT: 2003339	
DWG. NO. 01-G-03	
SHEET #3	
ARCHIVE #	



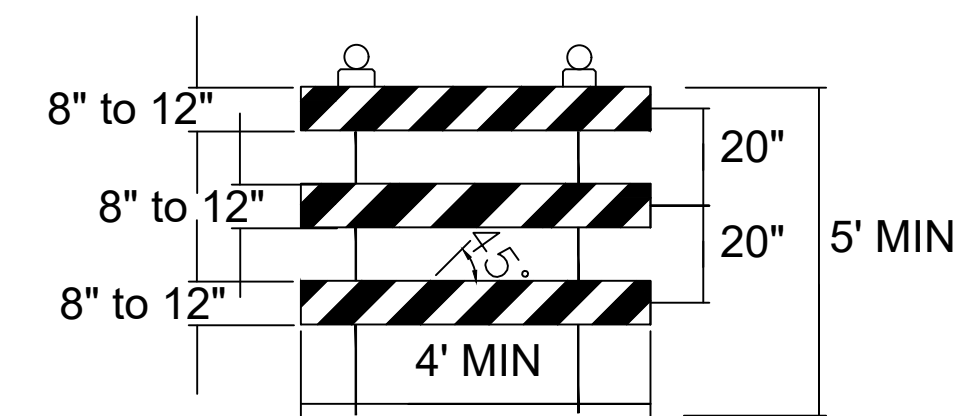
CONSTRUCTION STAGING AREA DETAIL



ROAD MAP
SCALE 1" = 300'

- LAKE MICHIGAN DRIVE TRAFFIC CONTROL NOTES:
1. TRAFFIC NORTH OF 11399 LAKE MICHIGAN DRIVE IS TO ENTER AND EXIT TO THE NORTH VIA LAKE MICHIGAN DRIVE.
 2. TRAFFIC SOUTH OF 11443 LAKE MICHIGAN DRIVE IS TO ENTER AND EXIT TO THE SOUTH VIA LAKE MICHIGAN DRIVE.
 3. CONTRACTOR SHALL NOT OBSTRUCT TRAFFIC IN EMPIRE BEACH STATE PARK AT ANY TIME.

TO BE INSTALLED FOR DURATION OF CONSTRUCTION WORK:



CLOSURE
TYPE III
BARRICADE
①

ROAD CLOSED
TO
THRU TRAFFIC

R11-4
60" x 30"
TYPE II B
BLACK LEGEND
WHITE BACKGROUND
②

ROAD CLOSED

R11-4
60" x 30"
TYPE II B
BLACK LEGEND
WHITE BACKGROUND
③

STEVEN CHRISTENSEN
 LEELANAU COUNTY DRAIN COMMISSIONER

SOUTH BAR LAKE DRAIN
 A PART OF SECTION 24, EMPIRE TWP,
 T28N, R15W, LEELANAU COUNTY, MICHIGAN

TRAFFIC CONTROL
 & CONSTRUCTION
 STAGING AREA

Attention:
 0 1"
 If this scale bar does not
 measure 1" then drawing is
 not original scale.

RELEASE #	DATE
1	11/21/2023

DESCRIPTION

BID SET

Designed By: MJW
 Checked By: BJC
 Drawn By: MJW
 Approved By: BJC

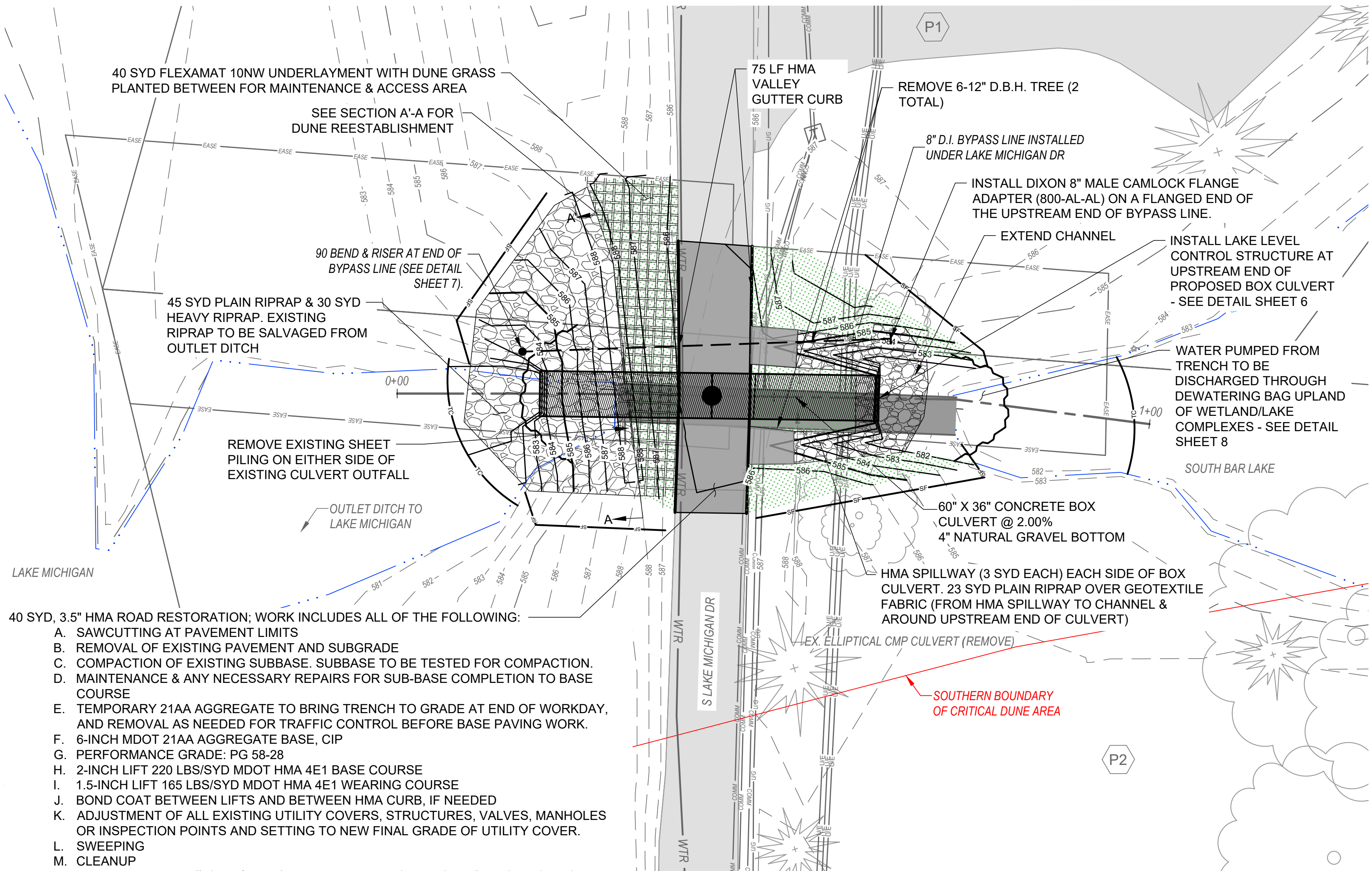
GEI PROJECT: 2003339

DWG. NO.
01-G-04
 SHEET #
 ARCHIVE #

LEGEND:

---	PROPERTY LINE
---	EASEMENT
0+00 --- X+XX	STATIONING ALIGNMENT
###	EXISTING CONTOUR INTERVAL (1 FOOT)
###	EXISTING INDEX CONTOUR INTERVAL (5 FOOT)
---	EXISTING GROUND SURFACE - PROFILE VIEW
---	EXISTING CULVERT
---	EXISTING PAVEMENT
---	EXISTING GRAVEL
---	SURVEYED WATERS EDGE (11-2-22)
---	BOUNDARY OF CRITICAL DUNE AREA
---	AMERICAN BEACH GRASS RESTORATION
###	PROPOSED CONTOUR INTERVAL (1 FOOT)
###	PROPOSED INDEX CONTOUR INTERVAL (5 FOOT)
---	PROPOSED GROUND SURFACE - PROFILE VIEW
---	PROPOSED RIPRAP
---	PROPOSED HMA ROAD RESTORATION
---	PROPOSED CULVERT
---	PROPOSED STONE PAVERS & DUNE GRASS
---	PROPOSED ROLLED CURB & GUTTER
SF	PROPOSED SILT FENCE
TC	PROPOSED TURBIDITY CURTAIN
---	PROPOSED SHEET PILE

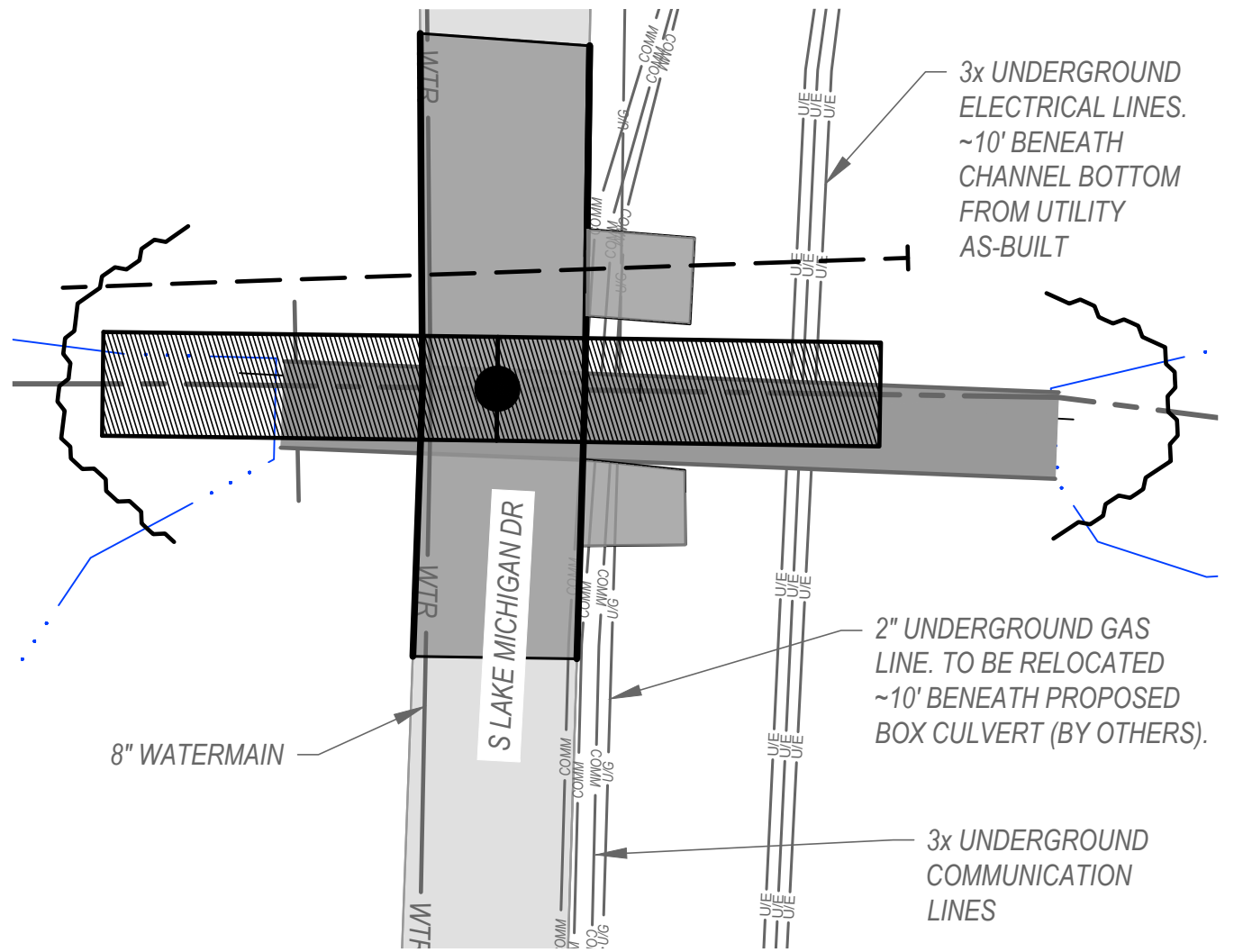
BM 11 ELEV = 587.86
 WESTERLY FLANGE BOLT ON
 HYDRANT NORTHWEST QUADRANT
 OF OUTLET AND LAKE MICHIGAN
 DRIVE



- 40 SYD, 3.5\"/>
 - SAWCUTTING AT PAVEMENT LIMITS
 - REMOVAL OF EXISTING PAVEMENT AND SUBGRADE
 - COMPACTION OF EXISTING SUBBASE. SUBBASE TO BE TESTED FOR COMPACTION.
 - MAINTENANCE & ANY NECESSARY REPAIRS FOR SUB-BASE COMPLETION TO BASE COURSE
 - TEMPORARY 21AA AGGREGATE TO BRING TRENCH TO GRADE AT END OF WORKDAY, AND REMOVAL AS NEEDED FOR TRAFFIC CONTROL BEFORE BASE PAVING WORK.
 - 6-INCH MDT 21AA AGGREGATE BASE, CIP
 - PERFORMANCE GRADE: PG 58-28
 - 2-INCH LIFT 220 LBS/SYD MDOT HMA 4E1 BASE COURSE
 - 1.5-INCH LIFT 165 LBS/SYD MDOT HMA 4E1 WEARING COURSE
 - BOND COAT BETWEEN LIFTS AND BETWEEN HMA CURB, IF NEEDED
 - ADJUSTMENT OF ALL EXISTING UTILITY COVERS, STRUCTURES, VALVES, MANHOLES OR INSPECTION POINTS AND SETTING TO NEW FINAL GRADE OF UTILITY COVER.
 - SWEEPING
 - CLEANUP

PROPERTY OWNER/EASEMENT INFO:

PROPERTY OWNER INFO			EASEMENT INFO		
ID #	PROP. OWNER	PROP. ADDRESS	PARCEL NUMBER	DOCUMENT NO.	EASEMENT TYPE
P1	BARBARA LUDLOW	11399 S LAKE MICHIGAN DR	041-824-079-00	2020004386	PERMANENT DRAIN EASEMENT
P2	CARLA WEINHEIMER & PEGGY DESUTELS	11443 S LAKE MICHIGAN DR	041-824-023-00	2020004388	PERMANENT DRAIN EASEMENT



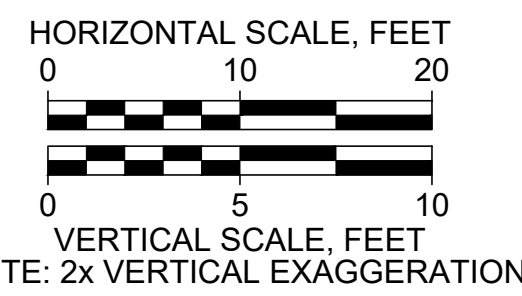
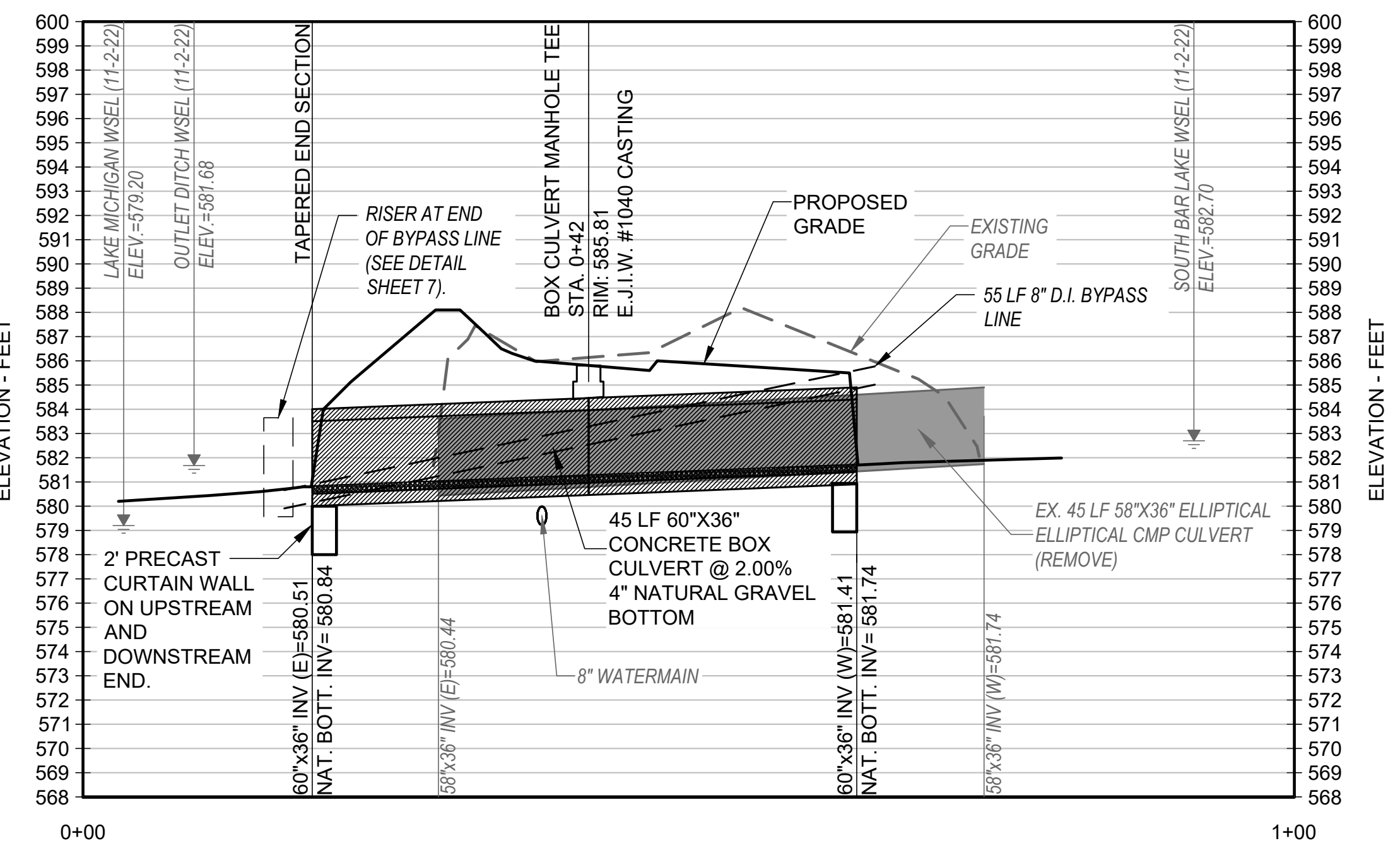
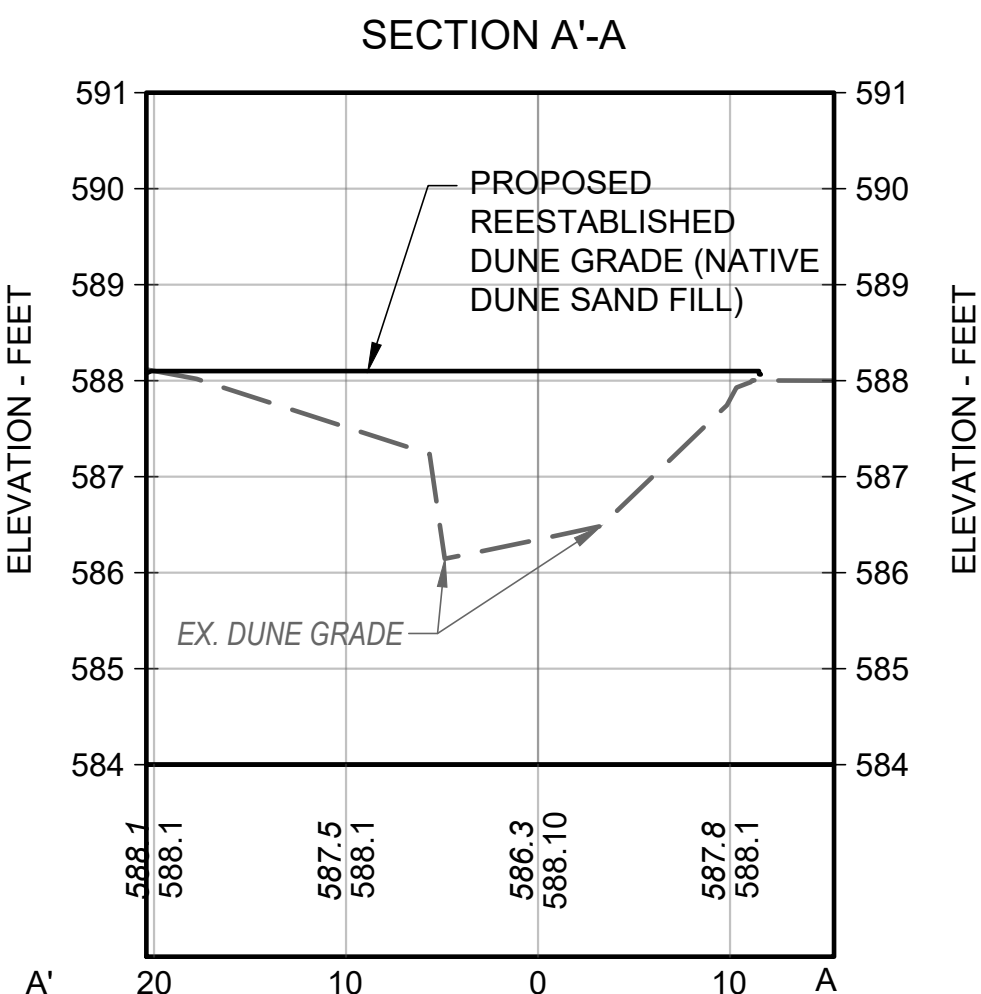
SOURCE:
 UTILITY LOCATIONS BASED ON MISS DIG FLAGS MARKED ON SEPT. 2023.

CONSTRUCTION SEQUENCE:

- INSTALL TEMPORARY SESC MEASURES
- INSTALL BYPASS PIPE
- SET UP BYPASS PUMPS AND APPURTENANT ITEMS TO BYPASS PIPE
- INSTALL WATER BARRIER UPSTREAM & DOWNSTREAM OF CROSSING
- TURN ON BYPASS PUMPS
- CULVERT REPLACEMENT
- TURN OFF BYPASS PUMPS AND REMOVE APPURTENANT ITEMS
- REMOVE WATER BARRIERS
- INSTALL PERMANENT SESC MEASURES

NOTES:

- CONTRACTOR MUST DO ALL WORK IN ACCORDANCE W/ EGLE PERMIT NO. WRP038864 WHICH IS INCLUDED IN THE CONTRACT DOCUMENTS.
- CONTRACTOR SHALL INSTALL SESC MEASURES BEFORE EARTH DISTURBANCE.
- TREE REMOVALS LESS THAN 6\"/>
- PROTECT ALL ROADWAY SURFACES NOT BEING RECONSTRUCTED AS PART OF THE PROJECT. CONTRACTOR WILL BE REQUIRED TO REPAIR/REPLACE ANY DAMAGED ROADWAY AT CONTRACTOR'S EXPENSE.
- LOCATE ALL UTILITIES PRIOR TO EXCAVATION. UTILITY LOCATION IS INCIDENTAL TO CONSTRUCTION. PROVIDE UTILITY ELEVATIONS TO ENGINEER TO CHECK FOR UTILITY CONFLICTS.
- MAINTAIN ACCESS FOR ALL HOMEOWNERS AT ALL TIMES.
- CONTRACTOR RESPONSIBLE FOR MAINTAINING MAIL DELIVERY AND GARBAGE DISPOSAL SERVICES.
- AS NECESSARY, REMOVE AND REINSTALL MAILBOXES AFTER CONSTRUCTION TO EXISTING CONDITION OR IN ACCORDANCE WITH LOCAL U.S.P.S. STANDARDS. CONTRACTOR IS RESPONSIBLE FOR ALL MAILBOX RESTORATION AFTER CONSTRUCTION.



Attention:
 If this scale bar does not measure 1\"/>

RELEASE #	DATE
1	11/21/2023

DESCRIPTION

BID SET

Designed By: MJW
 Checked By: BJC
 Drawn By: MJW
 Approved By: BJC

GEI PROJECT: 2003339

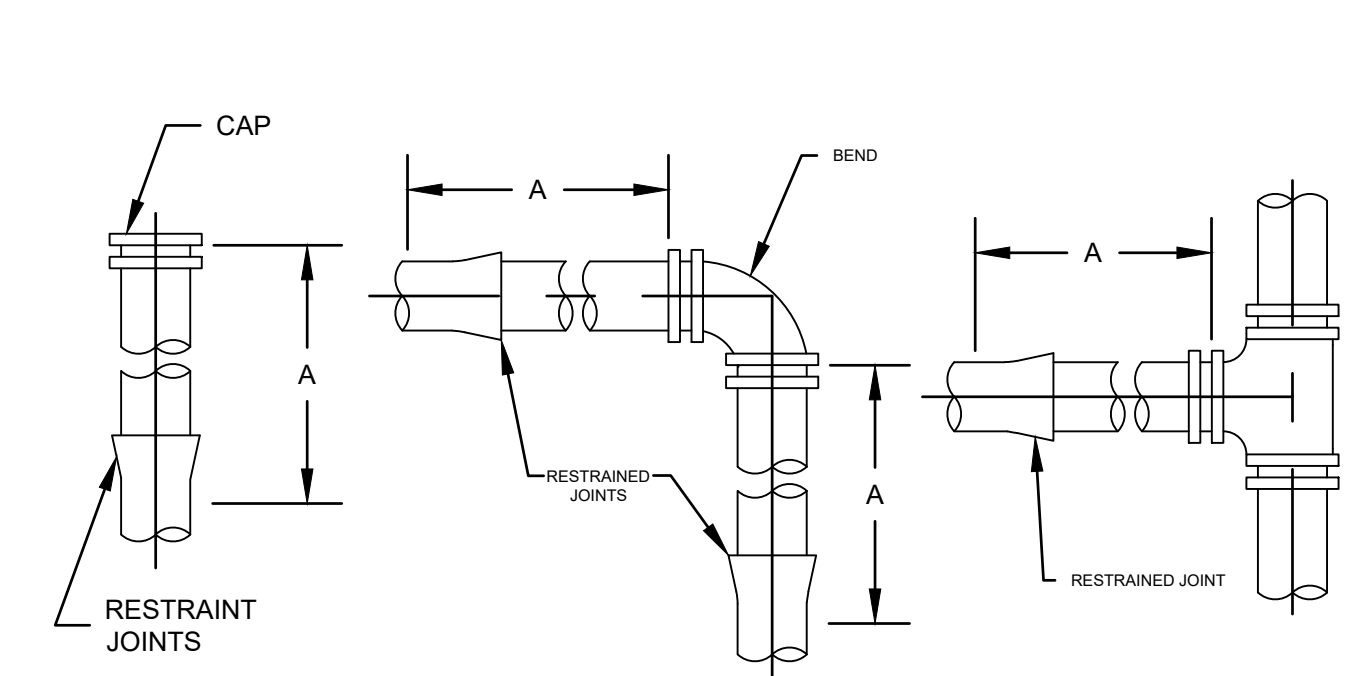
DWG. NO.
02-C-01
 SHEET #5
 ARCHIVE #

Attention:
 0 1"
 If this scale bar does not measure 1" then drawing is not original scale.

RELEASE #	DATE
1	11/21/2023
DESCRIPTION	
BID SET	

Designed By: MJW
 Checked By: BJC
 Drawn By: MJW
 Approved By: BJC

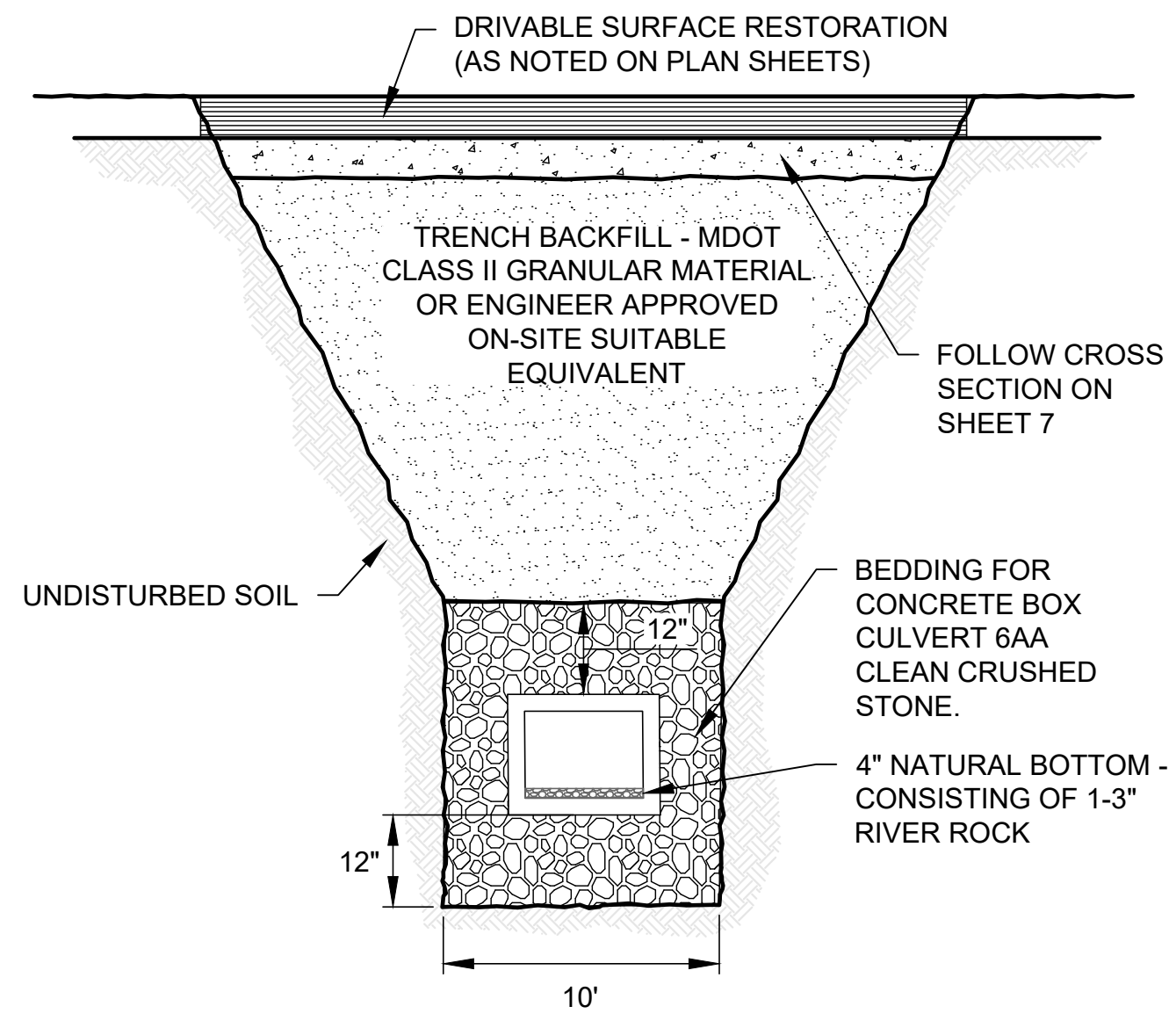
GEI PROJECT: 2003339
 DWG. NO.
99-D-1
 SHEET #6
 ARCHIVE #



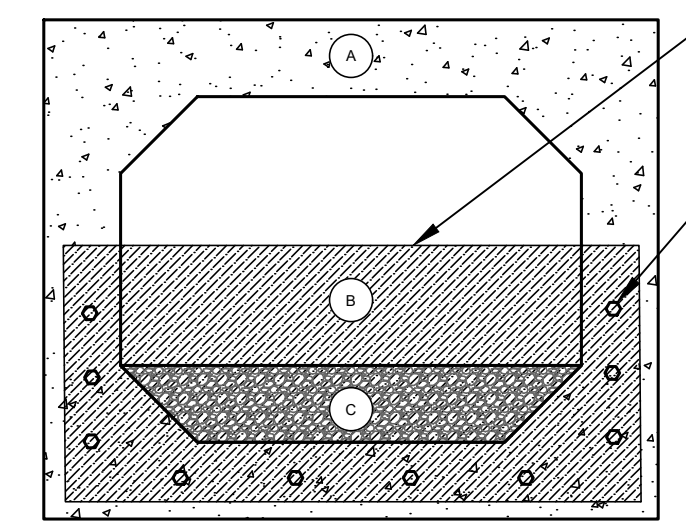
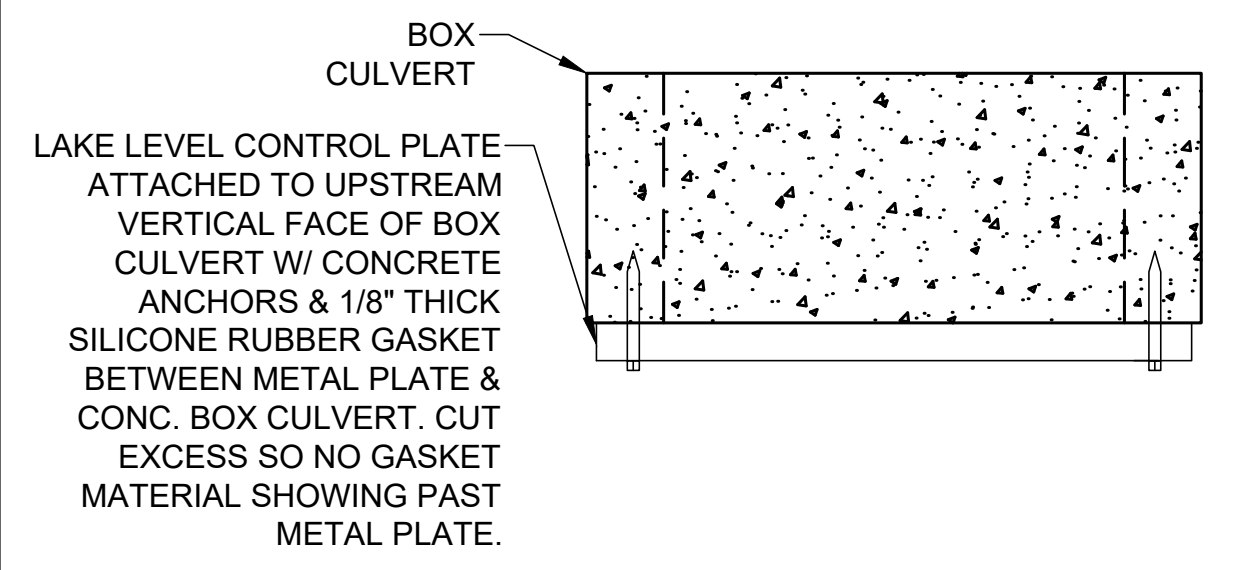
PIPE SIZE	LENGTH OF RESTRAINT REQUIRED, "A" IN FEET			DESIGN STRENGTH OF RESTRAINT REQUIRED (KIPS)	
	22-1/2	45	90 TEE, CAP OR VALVE	45	90 TEE, CAP OR VALVE
6"	3	11	37	2.0	5.0
8"	4	15	50	3.0	9.0
10"	5	18	61	5.0	14.0
12"	6	22	73	6.0	20.0
16"	8	28	95	11.0	36.0

- NOTES:**
- RESTRAINED JOINTS SHALL BE MADE USING MECHANICAL JOINTS WITH RETAINER GLANDS OR LOCKING GASKETS.
 - INCREASE THE ABOVE VALUES BY 25 PERCENT FOR PVC AND HDPE PIPE AND WHEN POLYETHYLENE ENCASEMENT IS UTILIZED.

02-405 PIPE RESTRAINT DETAIL
 NO SCALE



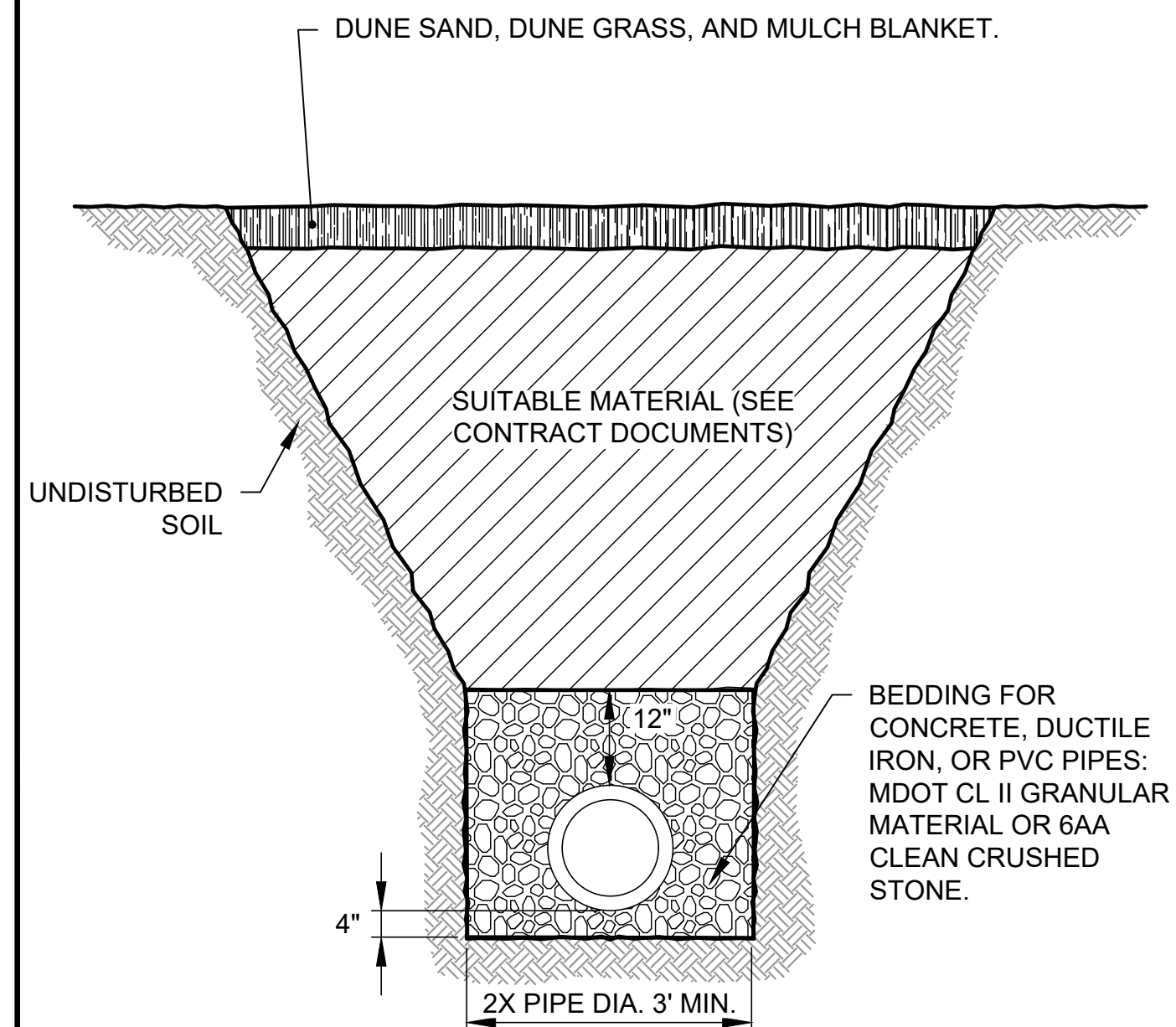
BOX CULVERT TRENCH DETAIL
 NO SCALE



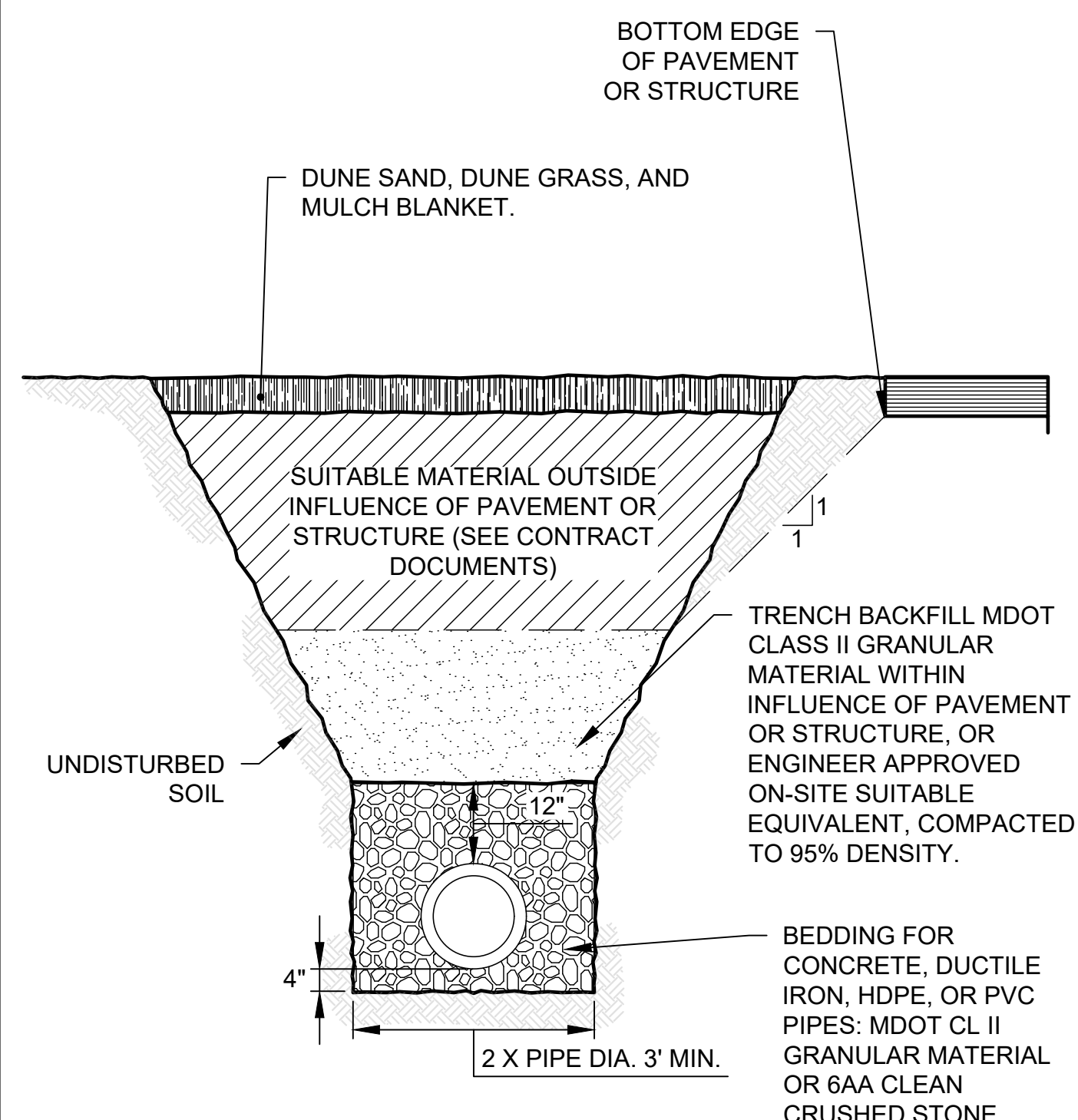
PROPOSED CREST ELEVATION TO MATCH EXACTLY TO THAT OF EXISTING. EXISTING CREST ELEVATION TO BE FIELD VERIFIED BEFORE REMOVAL.
 USE SIMPSON 5/8" X 6" STAINLESS STEEL WEDGE ANCHORS

BUBBLE NOTE LEGEND:
 A. BOX CULVERT WALL
 B. 58" L X 18" W X 3/8" H GALVANIZED STEEL PLATE WEIR, CREST ELEVATION = 582.40'
 C. 4" NATURAL GRAVEL BOTTOM CONSISTING OF MIX OF 1-3" RIVER ROCK

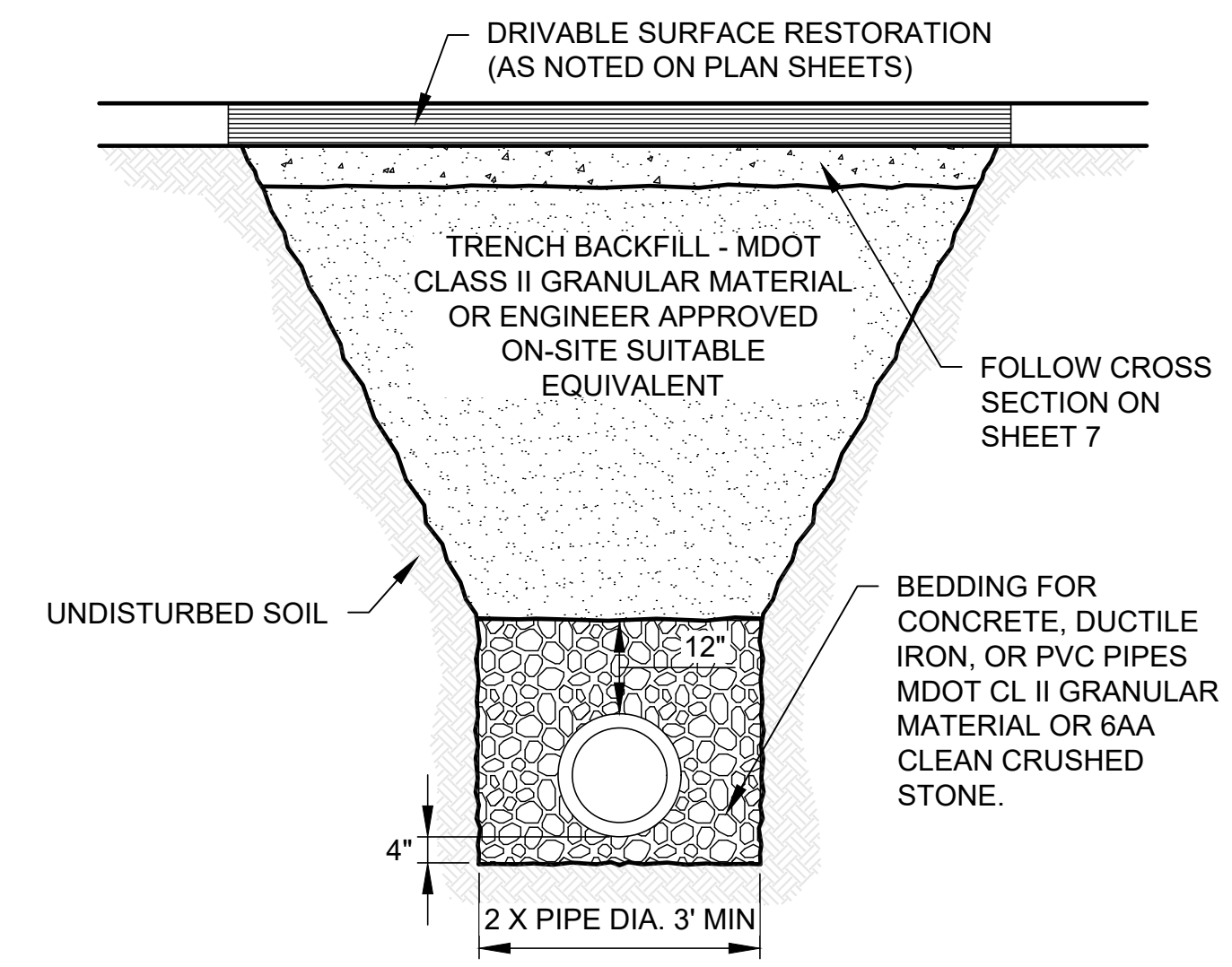
LAKE OUTLET CONTROL PLATE DETAIL
 NO SCALE



TRENCH NOT ADJACENT TO PAVEMENT OR STRUCTURE FOR BYPASS LINE DETAIL
 NO SCALE

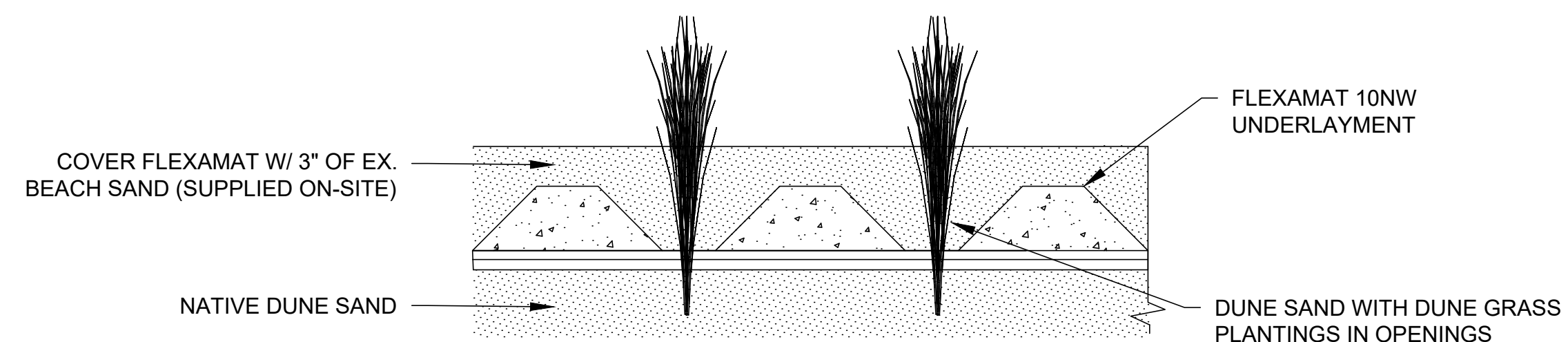
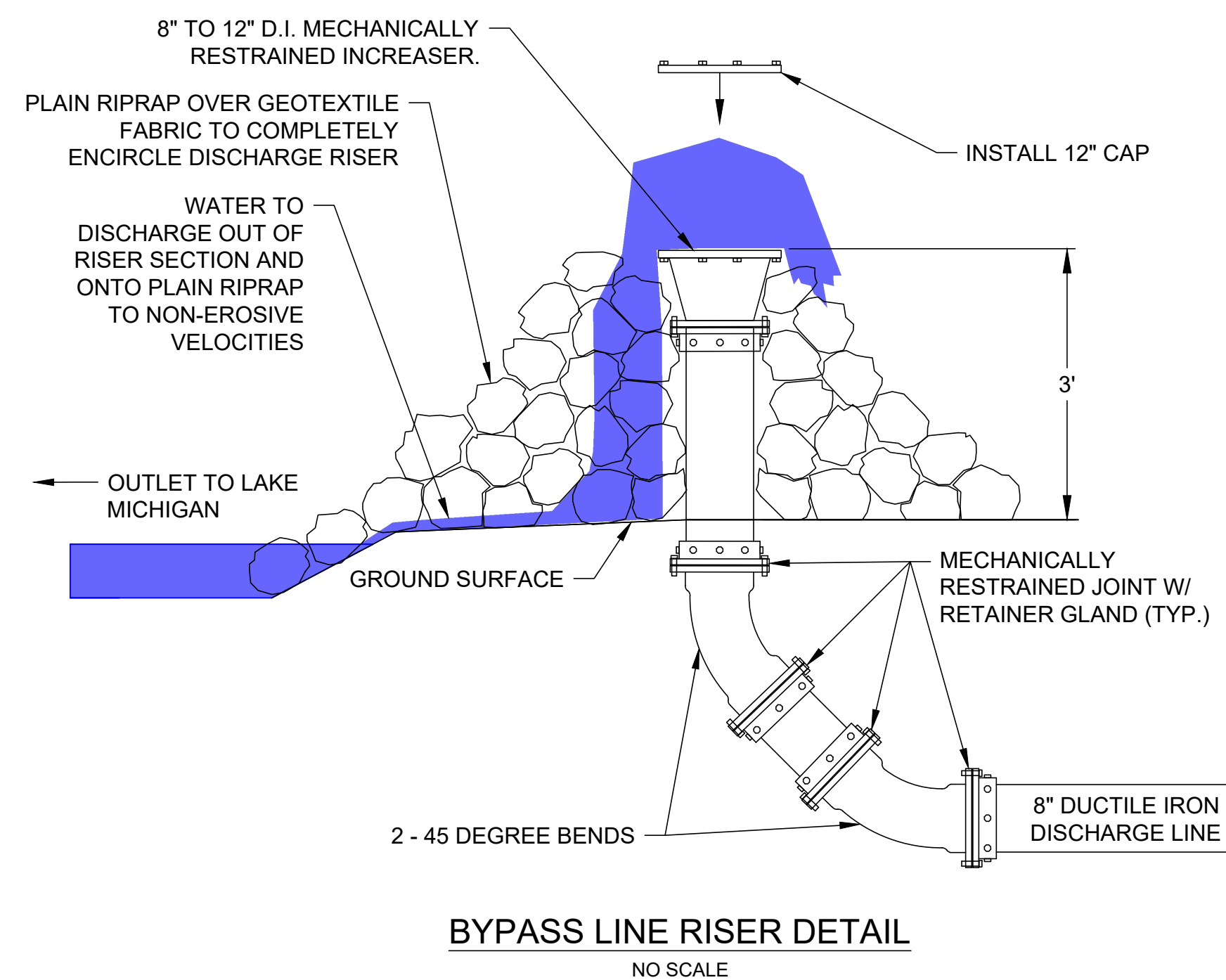


TRENCH ADJACENT TO PAVEMENT OR STRUCTURE FOR BYPASS LINE DETAIL
 NO SCALE

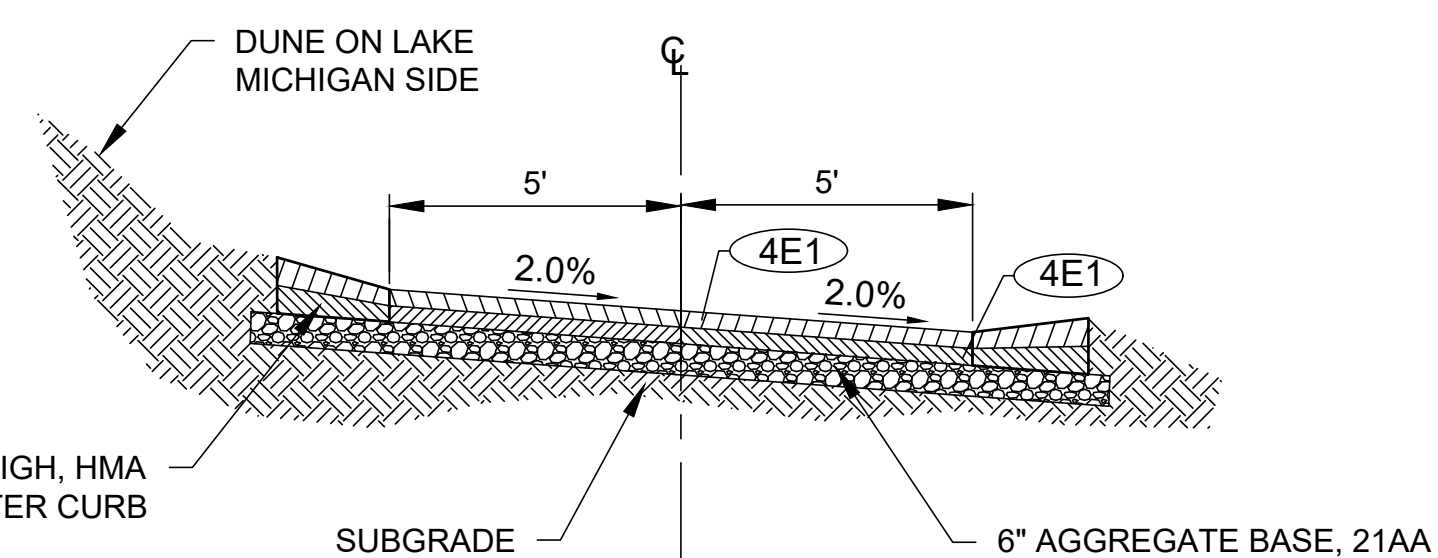


TRENCH BELOW PAVEMENT OR STRUCTURE FOR BYPASS LINE DETAIL
 NO SCALE

B:\Working\LEELANAU COUNTY DRAIN COMMISSIONER\2003339 South Bar Lake Drain\00_CAD\Design\Sheets\Construction Plan Set\2003339-01_C_06-DETAILS.dwg: 11/21/2023 4:00:49 PM; WALTON, MITCH; GEI.Design-Civil_Large-Format.dwg



FLEXAMAT CROSS-SECTION DETAIL
 NO SCALE

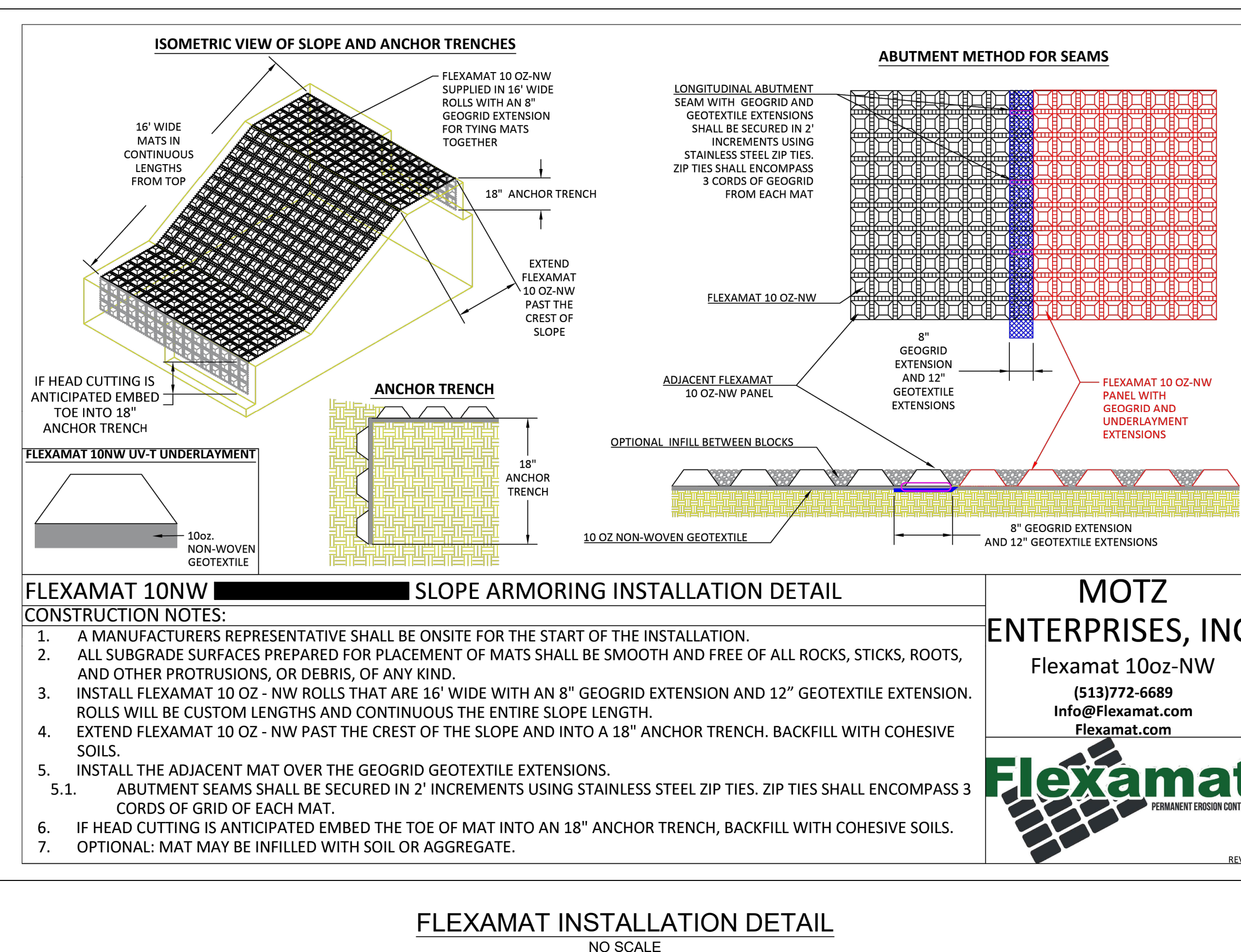
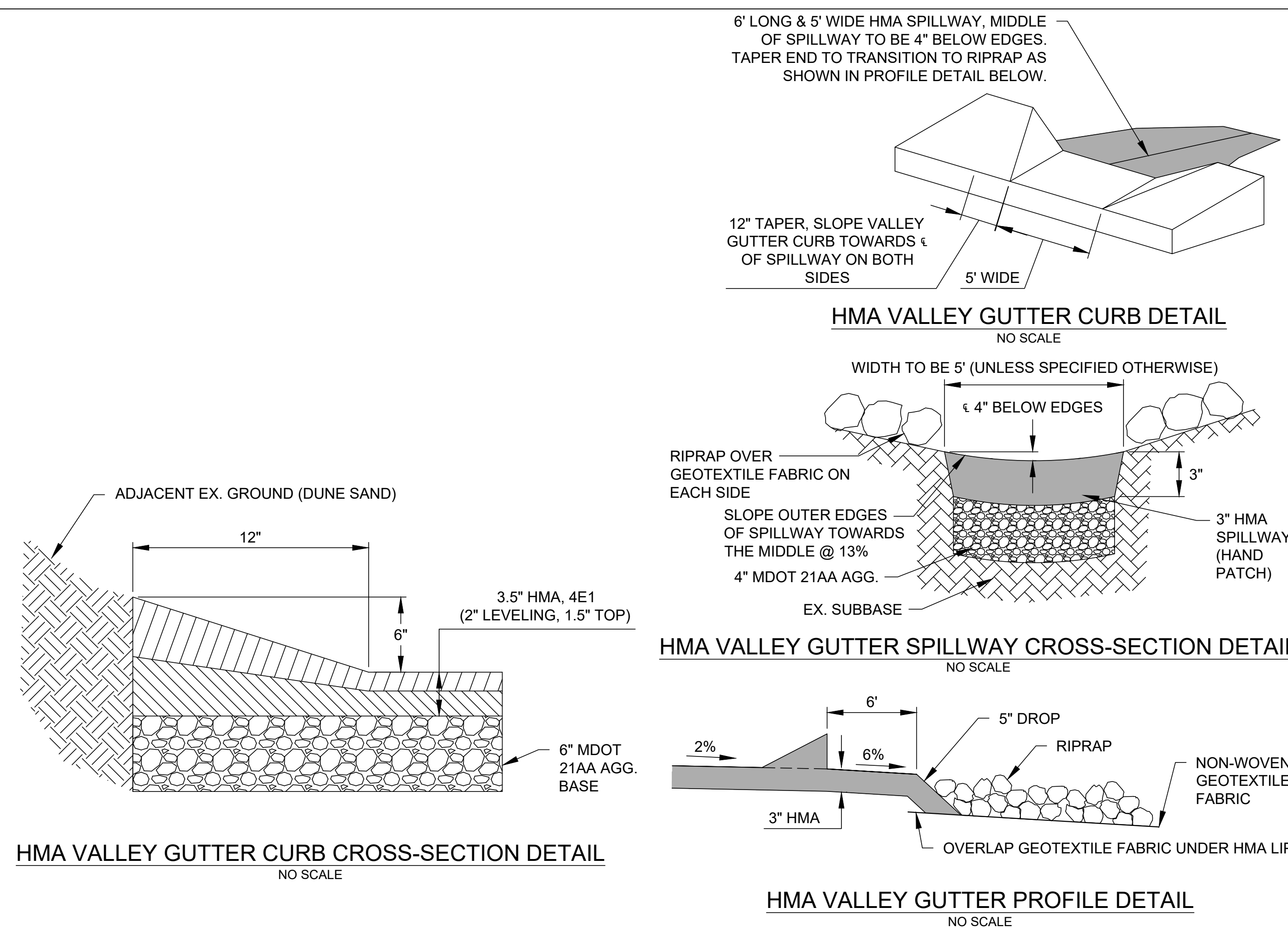


HMA APPLICATION CHART - ALL ROAD RESTORATION

IDENT NO.	ITEM	RATE OF APPL. LBS/SY	PERFORMANCE GRADE	COMMENTS
4E1	HMA, LVSP, 4E1, 1.5"	160	PG 58-28	TOP COURSE
4E1	HMA, LVSP, 4E1, 2"	220	PG 58-28	LEVELING COURSE

- NOTE:
 1. BOND COAT SHALL BE SS-1H APPLIED AT A RATE OF 0.1 GAL/SYD.
 2. PAVEMENT THICKNESS AS SPECIFIED.

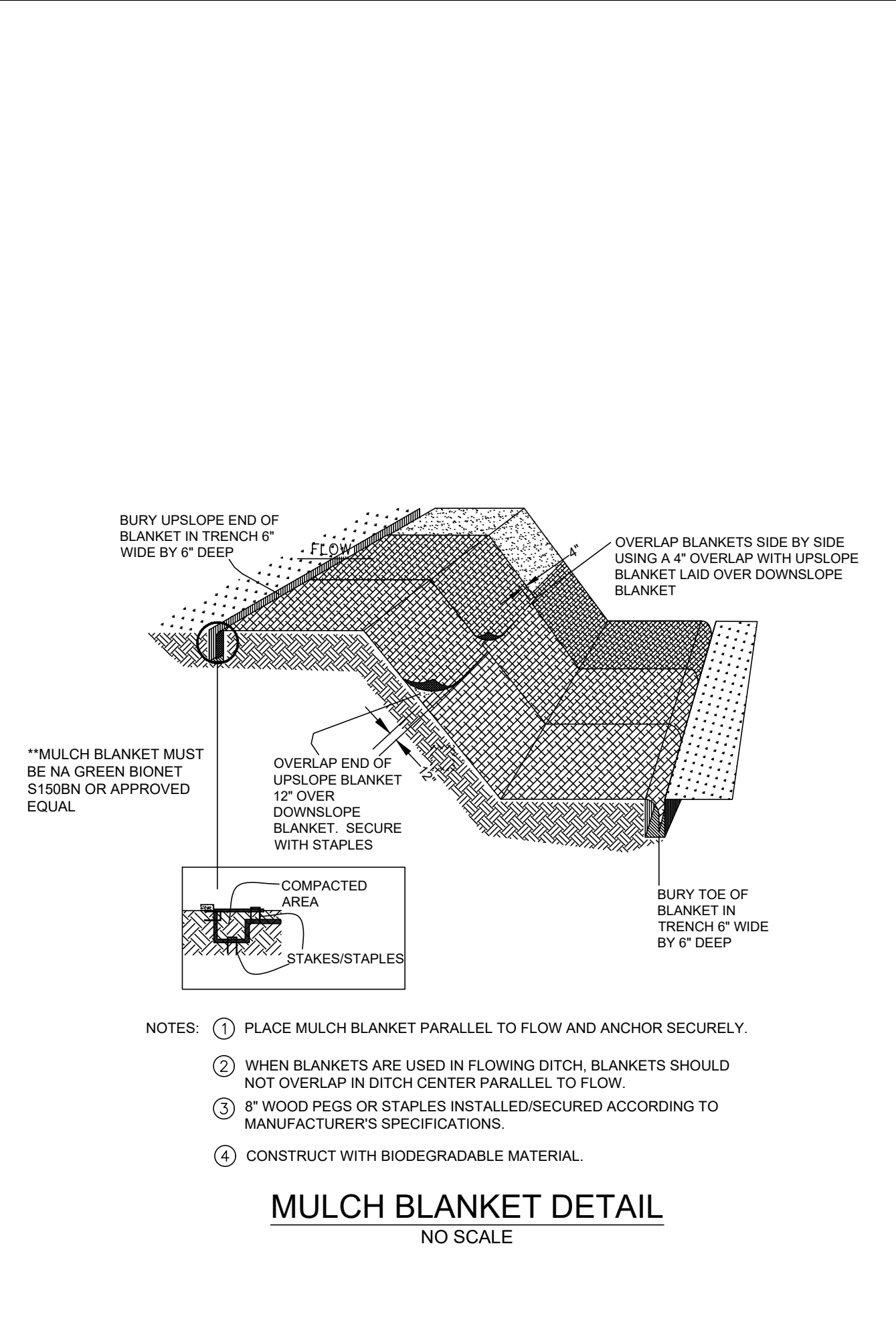
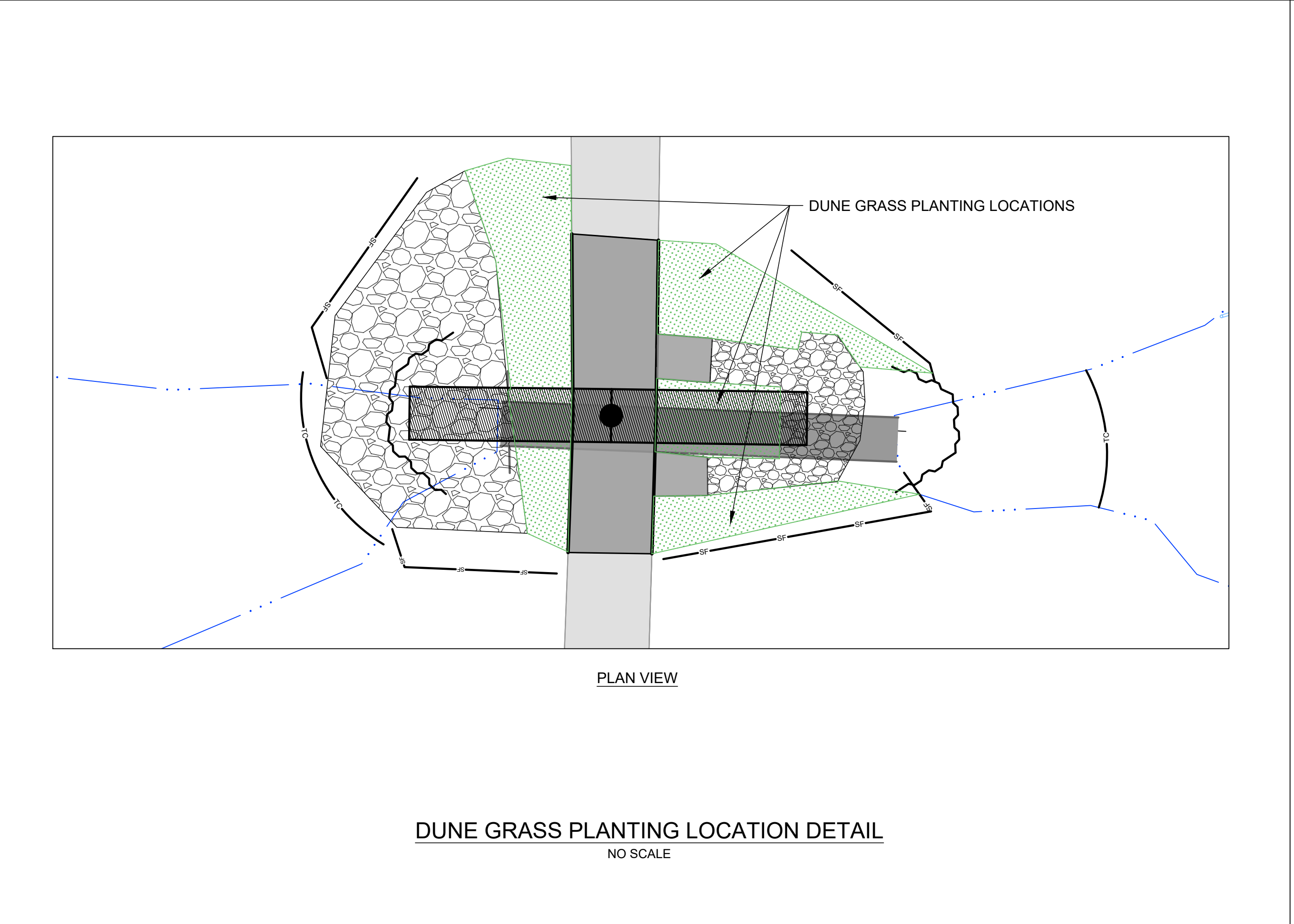
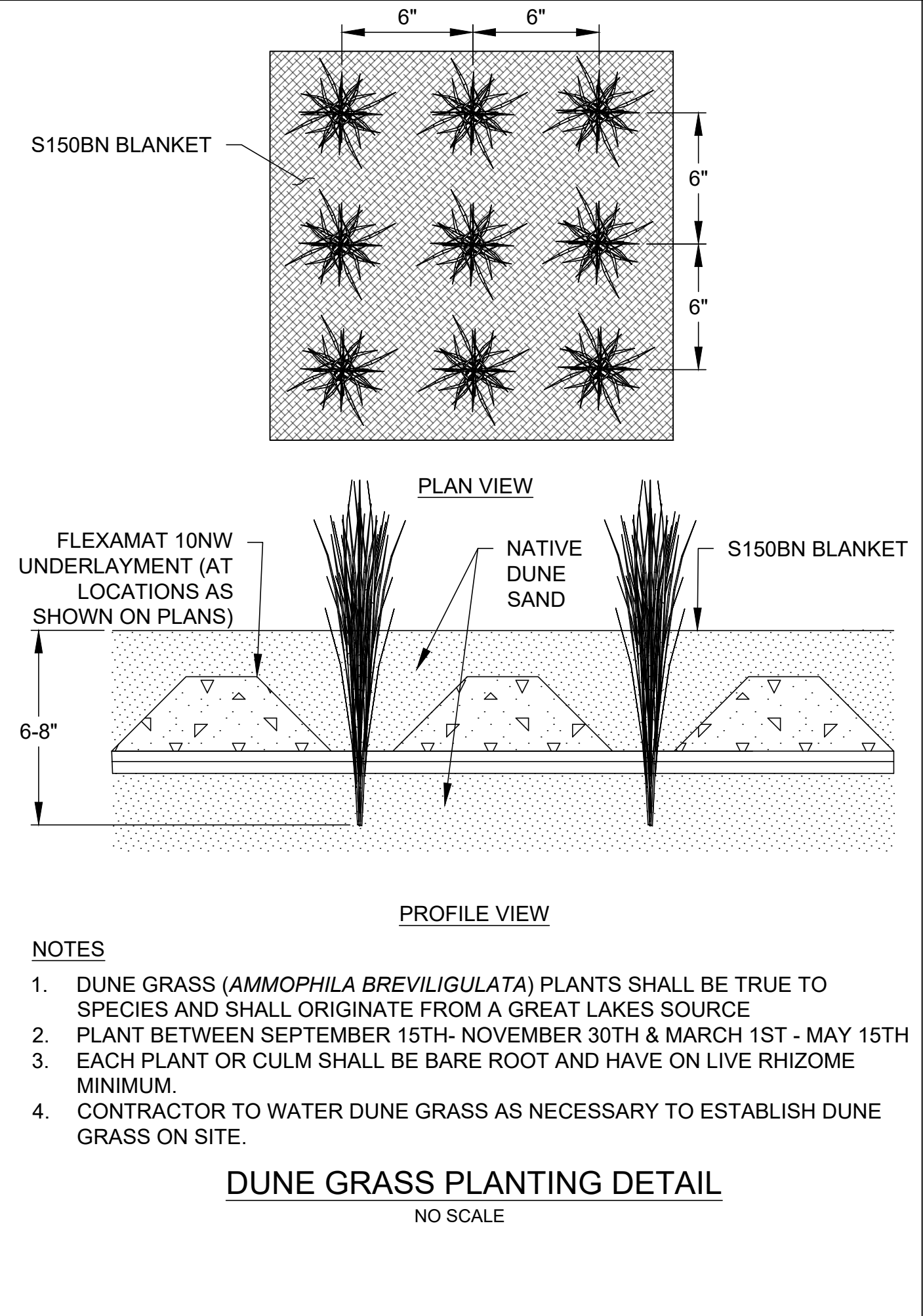
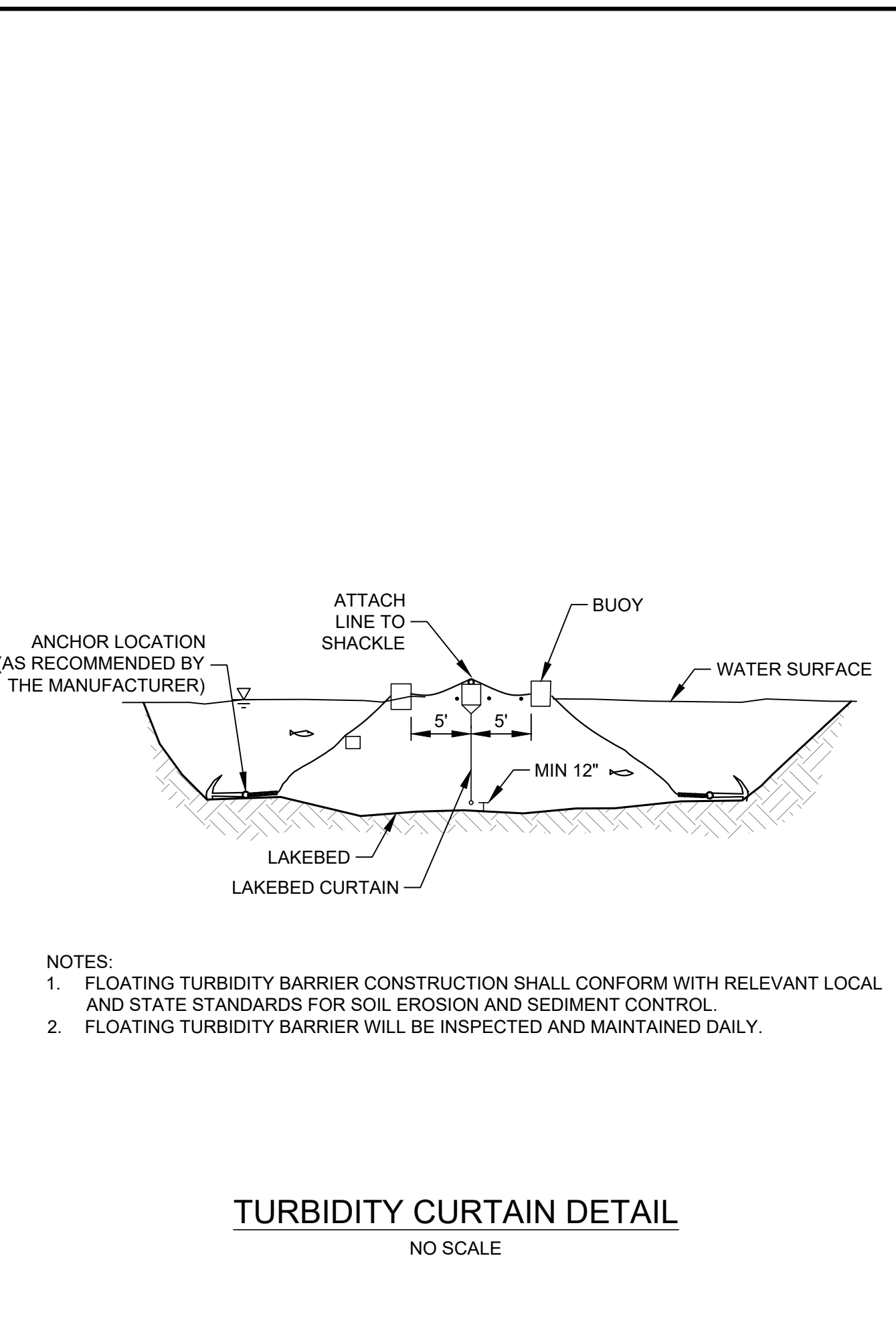
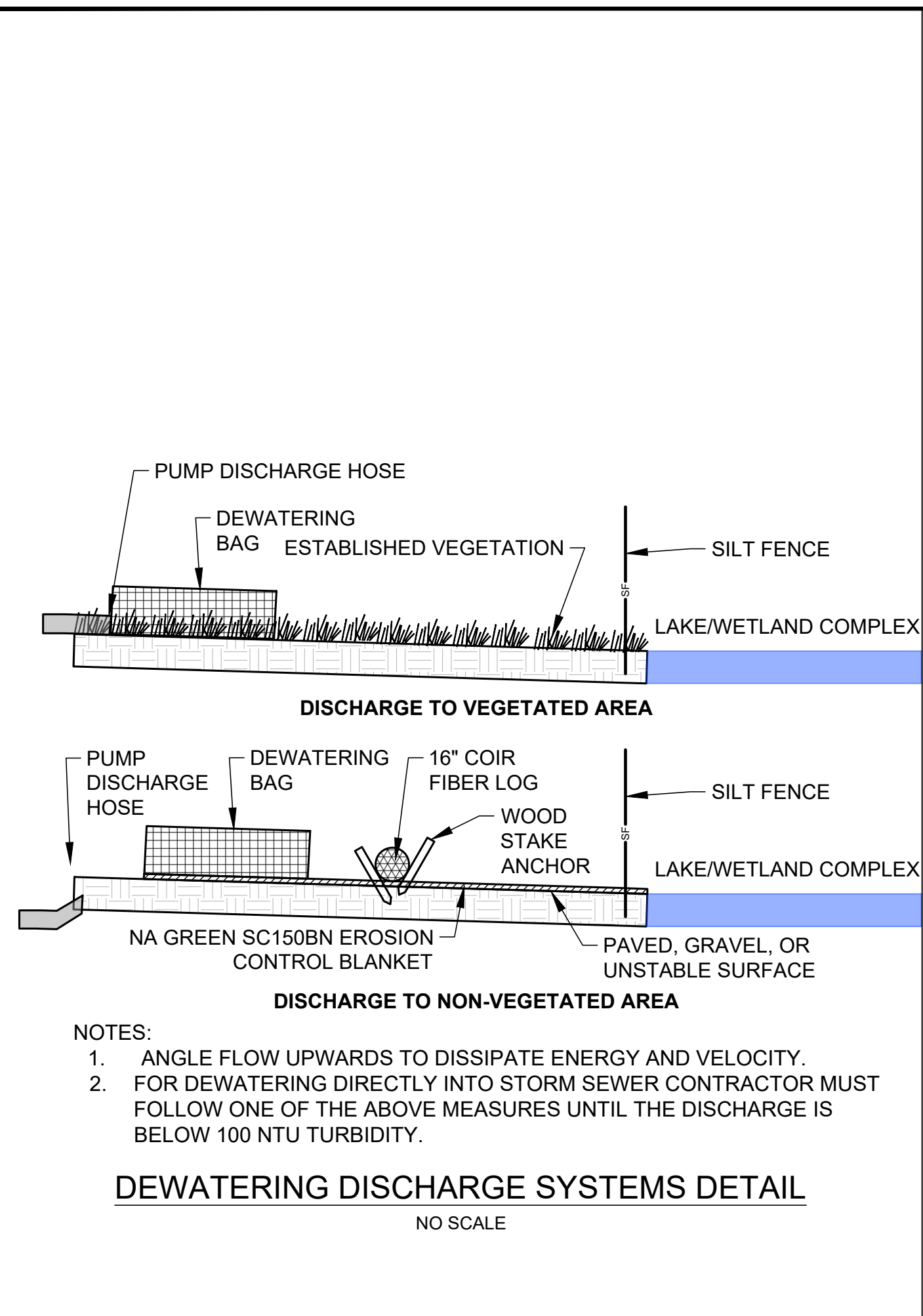
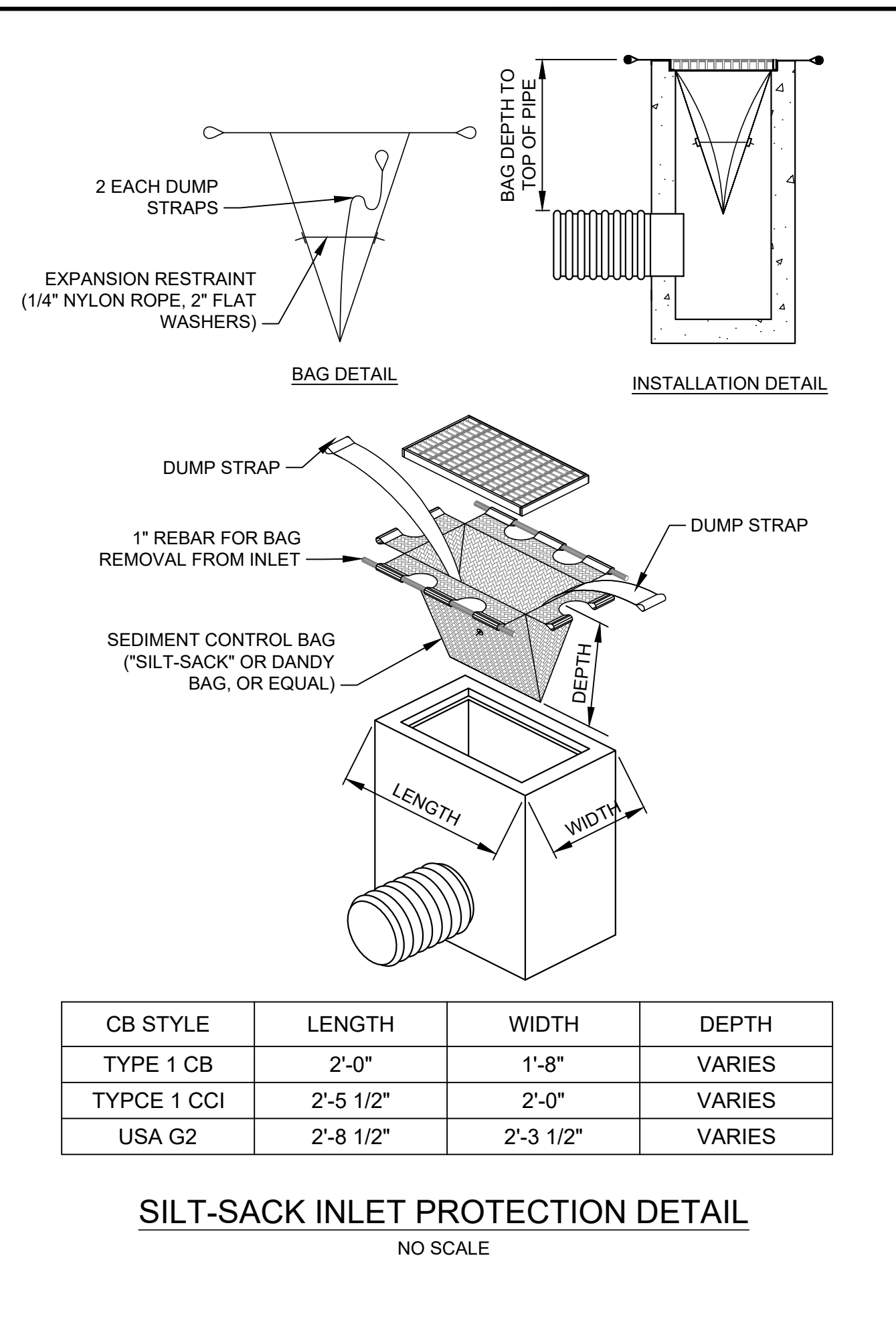
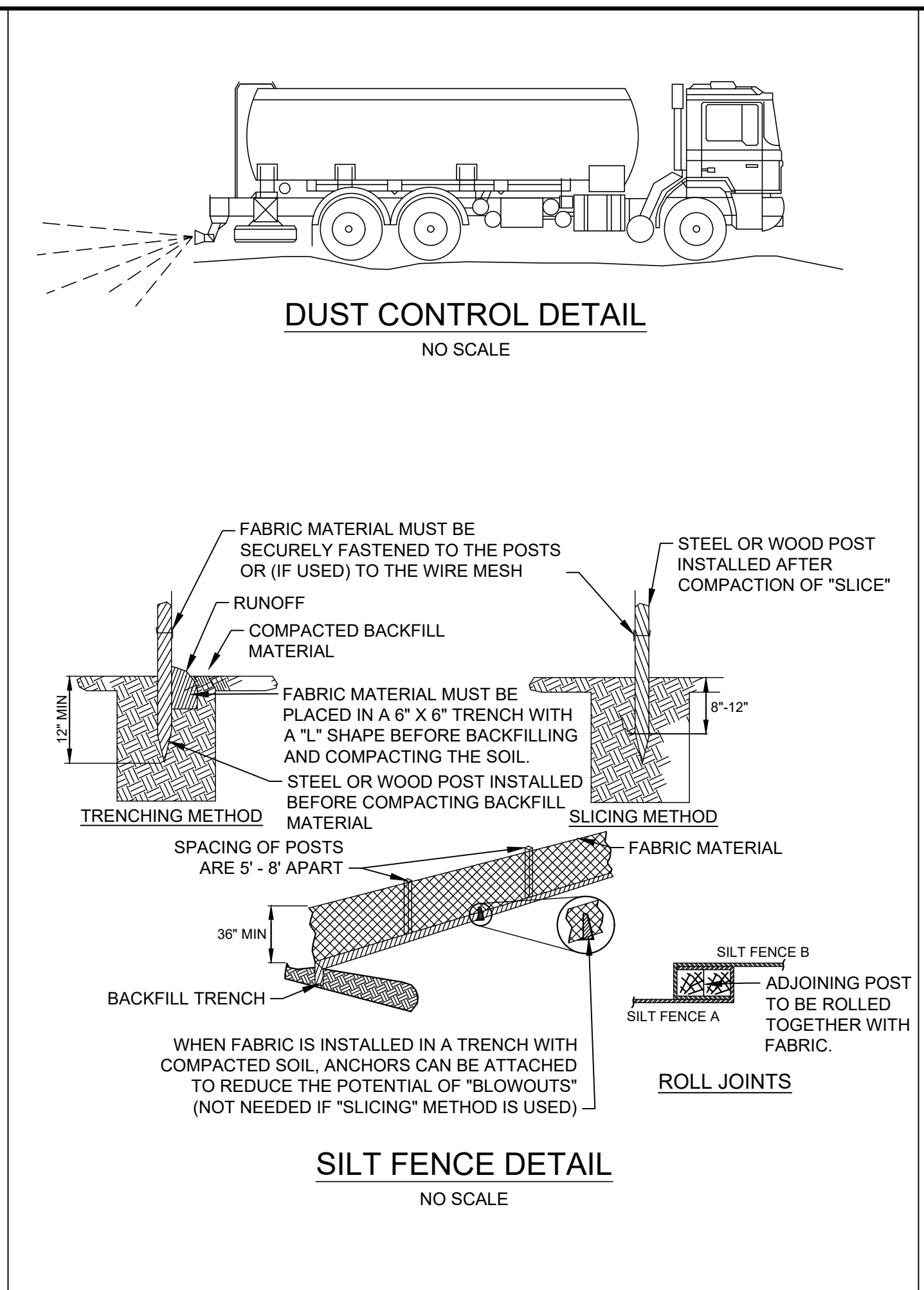
LAKE MICHIGAN DRIVE CROSS SECTION DETAIL
 NO SCALE



FLEXAMAT INSTALLATION DETAIL
 NO SCALE

RELEASE #	DATE
1	11/21/2023
DESCRIPTION	
BID SET	

Designed By: M.J.W.
 Checked By: B.J.C.
 Drawn By: M.J.W.
 Approved By: B.J.C.



B:\Working\LEELANAU COUNTY DRAIN COMMISSIONER\2003339 South Bar Lake Drain\00_CAD\Design\Sheets\Construction Plan_SCA\2003339-01_C_06-DETAILS.dwg: 11/21/2023 4:01:13 PM: WALTON, MITCH: GEL Design-Civil_Large-Format.dwg