

Operations and Maintenance Manual

Lion Trans Inc.

**4005 N County Road 1000 E
Brownsburg, Indiana 46112**

**Best Management Practices
For
Storm Water Quality**

December 19th, 2025

Owner:

**Malhi Kulwinder & Jigna Shah Jtsur
7631 E US Hwy 36
Avon, Indiana 46123**

Owner Information:

Name: Malhi Kulwinder & Jigna Shah Jtsur
Address: 7631 E US Hwy 36
Avon, Indiana 46123
Telephone: (317) 989-1580
Contact Person: Jigna Shah Jtsur
Contact Email: janh505969@gmail.com

BMP Site Drawings:

See Appendix

Responsible Party Required Periodic Inspections: See Appendix B for Tabular Inspection Schedule

It is the responsibility of the Responsible Party to inspect the installed infrastructure to determine if it is functioning as designed quarterly and after each major rainfall event.

Town Performed Periodic Inspections:

Town officials shall inspect the storm water improvement system installed annually. Inspections shall be based on the Town of Brownsburg Ordinances. The Responsible Party shall be responsible for the annual inspection fees and subsequent money spent in maintaining the best management practices as determined by the Town’s review official.

Required Perform Maintenance:

If determined by the Town’s inspection, the Responsible Party must complete any maintenance of the best management practices within the given specified timeframe. If maintenance activities are not completed, then the reserves the right to complete the maintenance activity and back charge the Responsible Party accordingly.

Routine Maintenance:

It is the responsibility of the Responsible Party to maintain the on-site and adjacent offsite drainage infrastructure. The routine maintenance includes mowing the grassy areas to a height between 4 to 6 inches. It is also the responsibility of the Responsible Party to keep all shrubbery and trees from growing in the right-of-way. The area must be kept clean of all litter and debris as well. Regarding soil within the yard area, if standing water is witnessed in excess for 48 hours after a storm event, the soil must be inspected for reasons of preventing absorption and/or decreasing permeability (i.e. compaction, debris, etc.) The soil needs to be tilled and/or inspected if immediate attention doesn’t rectify the situation. During tilling of the soil, mindfulness needs to be kept of the sub-surface drains to prevent damage (i.e. removal or crushing). The soil must maintain a minimum permeability value of $f_c > 0.50$ inches per hour. The sufficient proposed replacement soil such as Urban Land Fox Complex, 0 to 2% slope has sufficient permeability qualities to meet standards, if required.

Remedial Maintenance:

The responsibility of maintaining the installed infrastructure is the responsibility of the Responsibility Party. This includes replacing any damaged pipe, concrete structure, curb/gutters, etc. to maintain the function of the infrastructure as originally designed.

Sediment Removal:

Sediment removal from gutter of adjacent curbs.

Statement of Town’s Right of Access:

With the location of the access easement, Town officials have the right to enter the property and check the best management practices at their discretion.

Responsible Party for BMP Maintenance:

It is the sole responsibility of the Owner to maintain the best management practices after initial installation. This includes all costs and scheduling associated with the maintenance of BMP. The Owner is required to keep records of all inspection and maintenance activities and will self-certify that inspection and maintenance have been performed according to the Operations and Maintenance Manual, when requested by the city.

Responsible Party: _____

Printed Name of Responsible Party: _____

Date: _____

APPENDICES

APPENDIX A BMP DRAWINGS

Lions Trans Inc. Maintenance Building

4005 N. County Road 1000E

Brownsburg, Indiana 46112

Owner:

Malhi Kulwinder & Jigna Shah Jtsur
 7631 E. US Hwy 36
 Avon, Indiana 46123
 Phone: 317-989-1580

Civil Engineer:

Moench Engineering, P.C.
 4000 Clarks Creek Road
 Plainfield, Indiana 46168
 Phone: (317) 837-2767
 Fax: (317) 837-7266

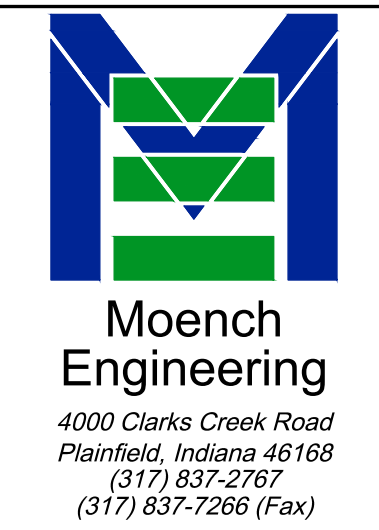
Jurisdictional Contact:

Town of Brownsburg Development Services
 61 N. Green St.
 Brownsburg, Indiana 46112
 Phone: (317) 852-1128

INDEX OF DRAWINGS	
SHT.	TITLE
	CIVIL DRAWINGS
C000	COVER SHEET
D101	OFFSITE DEMOLITION PLAN
C101	OVERALL SITE PLAN
C201	SITE PLAN
C301A	GRADING PLAN (EAST)
C301B	GRADING PLAN (WEST)
C302	EROSION CONTROL PLAN
C303	STORM WATER POLLUTION PREVENTION PLAN
C401	UTILITY PLAN
C402	SANITARY FORCE MAIN PLAN & PROFILE
C501-502	SECTIONS AND DETAILS
L101	LANDSCAPE PLAN
LT101	SITE LIGHTING PLAN

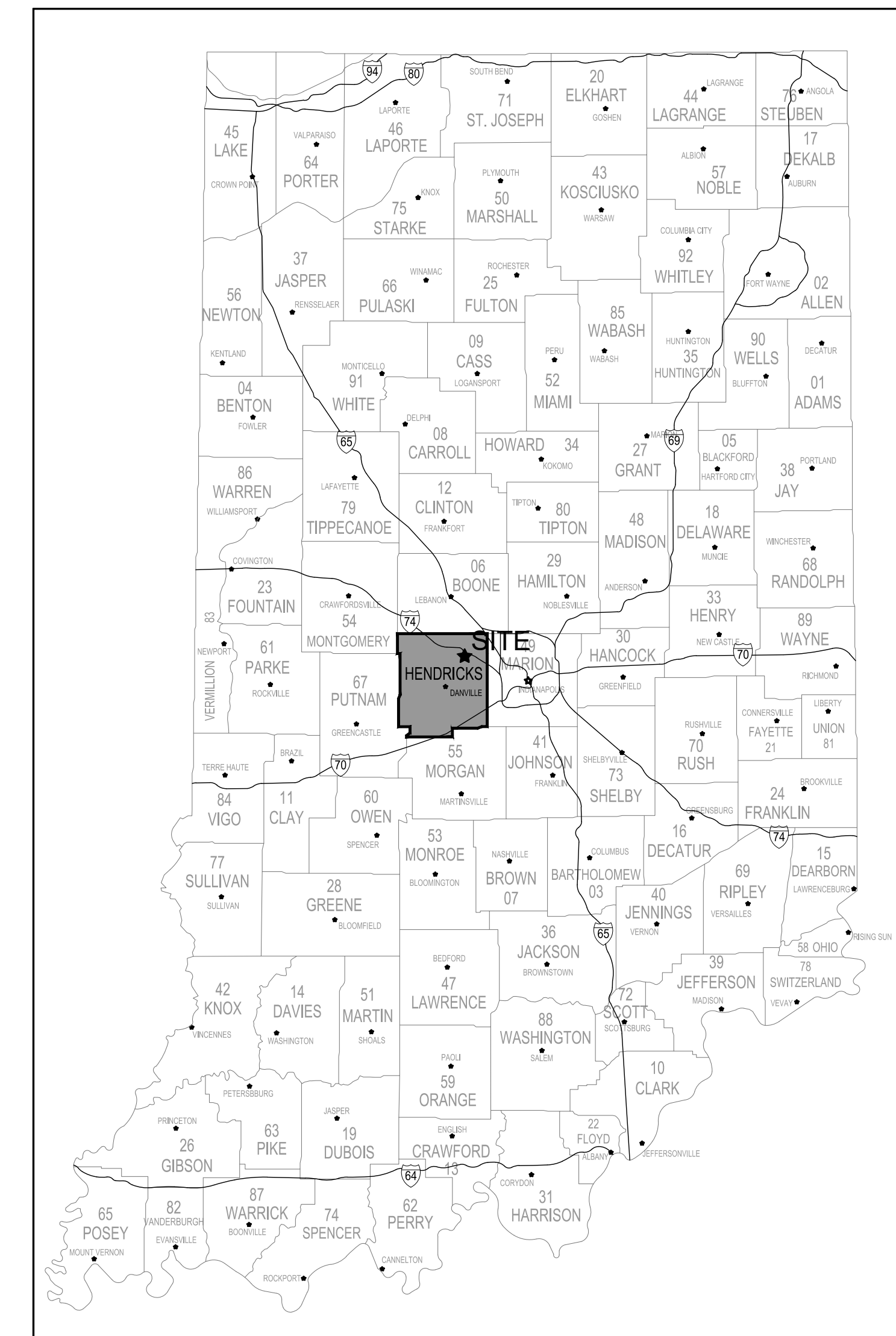
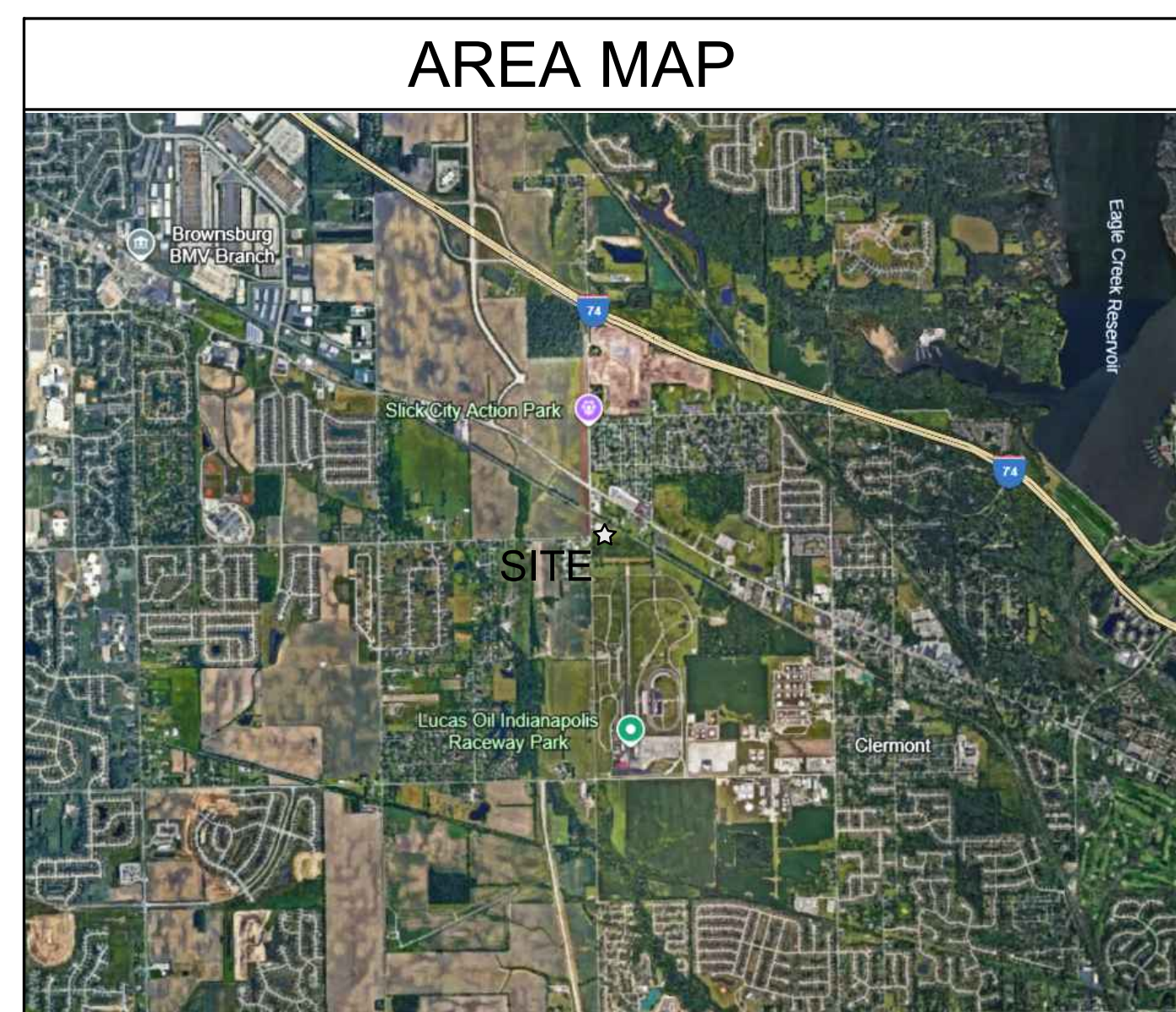
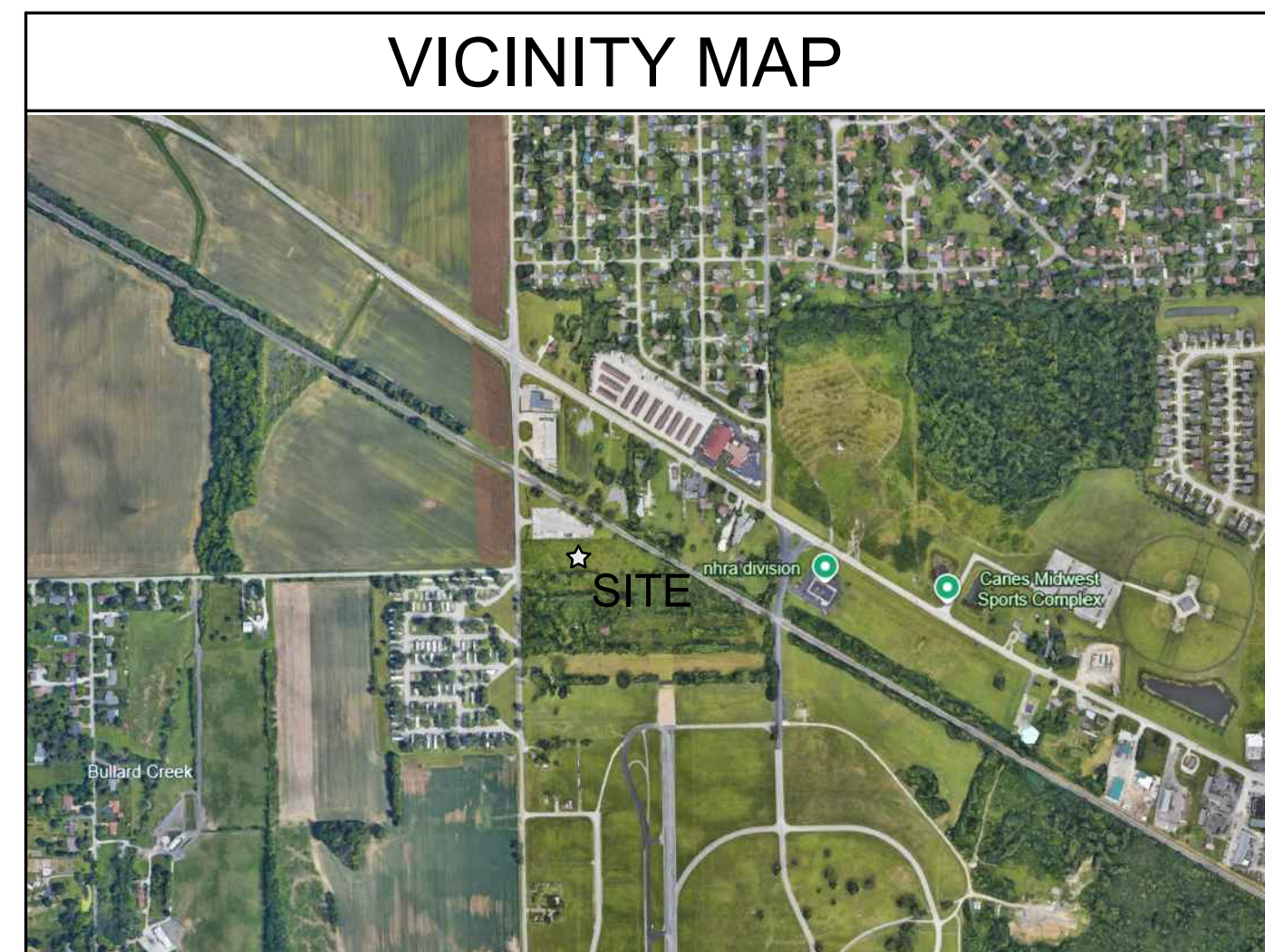
SITE ANALYSIS TABLE	
ZONING	MS
BUILDING TYPE	(1) OFFICE, (2) SHOP/GARAGE
NUMBER OF BUILDINGS	2
BUILDING HEIGHT	30'-0"
TOTAL PARCEL	3.07 Acres
TOTAL DISTURBED AREA	2.60 Acres
TOTAL PARKING REQUIRED	N/A
PARKING RATIO	1.1 space / employee & 1 visitor space / 10 employee spaces
TRUCK PARKING SPACES PROVIDED (10.5'x70')	33
STANDARD (9.5' x 18') SPACES	4
HANDICAPPED SPACES	1
TOTAL SPACES PROVIDED	38
TOTAL BUILDING SQUARE FOOTAGE	3760 s.f.

LOT COVERAGE			
	AREA (sq ft)	ACRES	PERCENT
ASPHALT	83,071	1.907	62%
BUILDINGS	3,760	0.086	2.8%
SIDEWALK	716	0.016	0.5%
IMPERV. (TOTAL)	87,547	2.01	65.4%
PERVIOUS	46,327	1.06	34.6%
LOT TOTAL	133,874	3.07	100%



THESE DRAWINGS ARE GIVEN IN CONFIDENCE AND SHALL BE USED ONLY IN PURSUANCE TO THE AGREEMENT WITH
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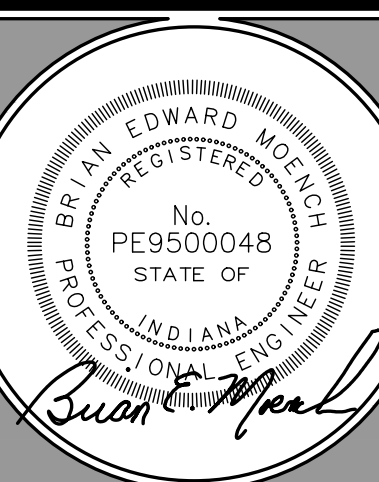
SUBJECT SITE:
 SITE LOCATED IN LINCOLN TOWNSHIP
 HENDRICKS COUNTY, INDIANA
 (39°49'21" N and 86°20'42" W)



LIONS TRANS INC. (BROWNSBURG)

4005 N CR 1000 E
BROWNSBURG, IN 46122

COVER SHEET



REVISIONS:		
0	SUBMITTED FOR REVIEW	11/5/21
1	REVISED PER ISDH COMMENTS	12/3/21
2	REVISED TO ABOVE GROUND STORAGE	11/22/22
3	REVISED per TOWN COMMENTS	9/09/24
4	REVISED per TOWN COMMENTS	12/11/24
5	Revised Storm Outlet	9/26/25
6	REVISED per TOWN COMMENTS	11/06/25

DRAWN BY: JBF
 CHECKED BY: BEM
 PROJECT NUMBER: 21346
 DATE: 1/13/22

SHEET NUMBER:
C000

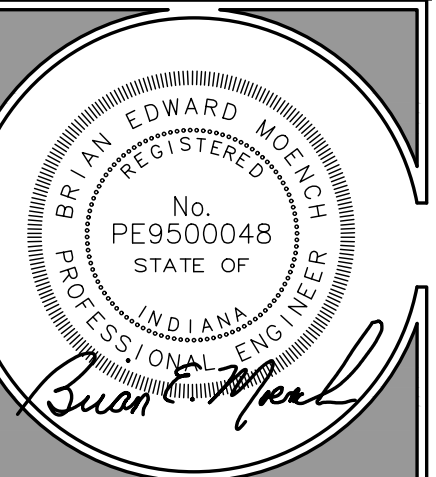


Moench Engineering
 4000 Clarks Creek Road
 Plainfield, Indiana 46168
 (317) 837-2767
 (317) 837-7266 (Fax)

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LIONS TRANS INC. (BROWNSBURG)
 4005 N CR 1000 E
 BROWNSBURG, IN 46122

OFFSITE DEMOLITION PLAN



REVISIONS:

NO.	DESCRIPTION	DATE
0	SUBMITTED FOR REVIEW	11/5/21
1	REVISED PER ISDH COMMENTS	12/3/21
2	REVISED TO ABOVE GROUND STORAGE	11/12/22
3	REVISED per TOWN COMMENTS	9/09/24
4	REVISED per TOWN COMMENTS	12/11/24
5	Revised Storm Outlet	9/26/25
6	REVISED per TOWN COMMENTS	11/06/25

DRAWN BY: JBF
 CHECKED BY: BEM
 PROJECT NUMBER: 21346
 DATE: 11/13/22
 SHEET NUMBER:

D101

PROTECTION AND DEMOLITION NOTES:

TREE REMOVAL AND PROTECTION:

- TREES SHALL BE REMOVED FROM THE PROJECT SITE ONLY WHERE THE AREA IS TO BE OCCUPIED BY ROAD, SURFACED AREAS, OR DRAINAGE SWALES.
- TREES SHALL BE REMOVED FROM THE PROJECT SITE WHERE THEY INTERFERE DIRECTLY WITH THE PLACEMENT OF STORM OR SANITARY SEWERS AND THAT SUCH EXCAVATION WILL BE FATAL TO TREES.
- THE CONTRACTOR SHALL ENDEAVOR TO SAVE AND PROTECT TREES OF VALUE AND WORTH WHICH DO NOT IMPAIR CONSTRUCTION OF IMPROVEMENTS AS DESIGNATED. IN THE EVENT CUT OR FILL EXCEEDS 0.5 FEET OVER THE ROOT AREA, THE DEVELOPER SHALL BE CONSULTED WITH RESPECT TO PROTECTIVE MEASURES TO BE TAKEN, IF ANY, TO PRESERVE SUCH TREES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE METHOD FOR PROTECTION OF TOPS, TRUNKS AND ROOTS OF EXISTING TREES ON THE PROJECT SITE THAT ARE TO REMAIN. EXISTING TREES SUBJECT TO CONSTRUCTION DAMAGE SHALL BE BOXED, FENCED OR OTHER MATERIAL AND EQUIPMENT SHALL NOT BE STOCKPILED OR STORED WITHIN THE SPREAD OF BRANCHES. BRANCHES WHICH NEED TO BE REMOVED OR ARE BROKEN SHALL BE NEATLY TRIMMED AND SCARS SHALL BE COVERED WITH TREE PAINT.

CLEARING AND GRUBBING:

- CLEARING AND GRUBBING SHALL CONSIST OF CUTTING, REMOVING AND SATISFACTORY DISPOSING OF ALL TREES, BRUSH, PROJECTING ROOTS, STUMPS, RUBBISH, BROKEN PAVEMENT, BROKEN CONCRETE, FENCING (AS DESIGNATED) AND OTHER MATERIALS ON THE PROJECT SITE AND WITHIN THE BOUNDARY AS SHOWN ON THE CONSTRUCTION DOCUMENTS AND / OR DESIGNATED BY THE CONSTRUCTION LIMITS.
- ALL "UNSUITABLE MATERIAL" FROM CLEARING OPERATIONS SHALL BE REMOVED TO DISPOSAL AREAS AS DIRECTED BY GENERAL CONTRACTOR.

STRIPPING OF TOPSOIL:

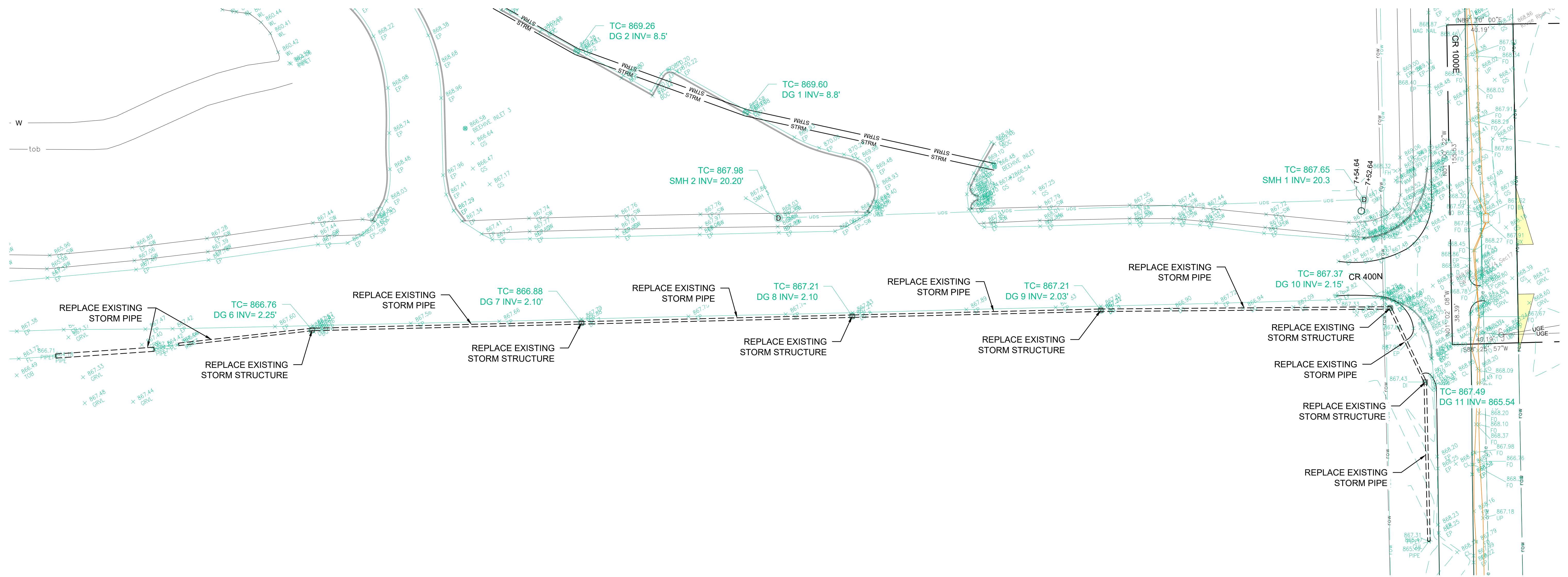
- THE CONTRACTOR SHALL VERIFY THAT ALL TOPSOIL HAS BEEN REMOVED IN THE AREAS TO BE OCCUPIED BY ROADS, WALKS AND DESIGNATED BUILDING AREAS. TOPSOIL SHALL BE REMOVED TO A DEPTH OF SIX (6) INCHES OR DEEPER, IF NECESSARY, TO REMOVE ORGANIC MATTER WHERE REQUIRED.
- TOPSOIL SHALL BE KEPT SEPARATED FROM SUITABLE FILL MATERIALS AND SHALL NOT BE USED AS FILL UNDER PAVEMENT, BUILDING AREAS AND / OR FUTURE STRUCTURAL AREAS.
- TOPSOIL SHALL BE STORED AT A LOCATION WHERE IT DOES NOT INTERFERE WITH CONSTRUCTION OPERATIONS AS DIRECTED BY THE GENERAL CONTRACTOR.
- TOPSOIL SHALL BE REASONABLY FREE FROM SUBSOIL, DEBRIS AND STONES.

DEMOLITION:

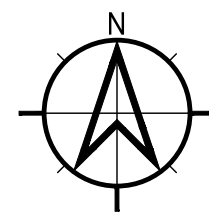
- ALL MATERIAL AS A RESULT OF THE GENERAL DEMOLITION SHALL BE THE PROPERTY OF THE CONTRACTOR. THE CONTRACTOR'S LUMP SUM BID PRICE FOR THE DEMOLITION SHALL TAKE INTO ACCOUNT THE SALVAGEABLE VALUE OF MATERIALS AND SAID BID PRICE SHALL REFLECT SAID DRAWINGS.
- THE CONTRACTOR SHALL OBTAIN FROM ALL APPLICABLE GOVERNMENT AUTHORITIES NECESSARY PERMITS REQUIRED. A COPY OF SUCH PERMITS TO BE FURNISHED TO THE OWNER PRIOR TO COMMENCEMENT OF ANY WORK HEREIN.

STONE REMOVAL:

- EXISTING STONE SURFACE TO BE REMOVED, STOCKPILED AND REDISTRIBUTED AFTER NEW GRADES ARE COMPLETED.



OFFSITE DEMOLITION PLAN
 SCALE: 1" = 30'



LEGAL DESCRIPTION

LEGAL DESCRIPTION:
Per Instrument No. 202121241 SUR filed in the Office of the Recorder in Hendricks County, Indiana, and described as follows:

Addresses and Parcel Numbers:
4005 N.C.R. 1000 E., Brownsburg, IN 46112
#52-08-17-365-002.000-016

The following represents a modernized legal description of a tract of land, as described in Instrument #1998-04591 in the Office of the Recorder of Hendricks County, Indiana and being located in the Southwest Quarter of Section 17 and the Northwest Quarter of Section 20 both in Township 16 North, Range 2 East of the Second Principal Meridian, Hendricks County, Indiana. Said tract being more particularly bound and described as follows, to-wit:

East line of the Southwest quarter of Section 17 as being North 01 degrees 22 minutes 53 seconds West, dead, measured North 01 degrees 00 minutes 22 seconds West and all other bearings being relative thereto.

Beginning at a Hendricks County Aluminum monument found marking the Southwest corner of the Southwest quarter Section 17, Township 16 North, Range 2 East of the Second Principal Meridian, Hendricks County, Indiana; thence running North on and along the West line of the Southwest quarter of Section 17 bearing North 01° 22' 53" West 155.58 feet, dead, and measured North 01° 00' 22" West 155.53 feet to a point on said West line, marking the Northeast corner of the National Hot Rod Association tract as referenced in the caption; thence running East on and along the North line of the National Hot Rod Association bearing North 88° 42' 57" East 546.58 feet, dead, and measured North 89° 10' 00" East a distance of 40.19 feet to a found 5/8" rebar with Kruse Consulting cap affixed and the Point of Beginning of this description; thence continuing North 89° 10' 00" East a distance of 508.15 feet to a found 5/8" rebar with Kruse Consulting cap affixed marking the intersection with the Southwesterly Right-of-Way of the CSX Railroad; thence running Southeast on and along the CSX Railroad Right-of-Way and traveling into the Northwest quarter of Section 20 bearing South 61° 12' 10" East 366.62 feet, dead, and measured South 60° 46' 15" East a distance of 365.01 feet to a found 5/8" rebar with Gaston cap marking the Northeast corner of Lot 1 in Villa Farms Subdivision, as per plat thereof recorded in Plat Book 3, page 134 in the Office of the Recorder of Hendricks County, Indiana; thence running West on and along the North line of said Lot 1 in Villa Farms Subdivision bearing South 88° 25' 57" West 863.49 feet (plat for Villa Farms shows this line to be 860.54 feet, calculated to be 823.52 feet to a point marking the intersection with the East right-of-way of N. CR. 1000 E.; thence South 01° 02' 22" East 38.39 feet on and along said right-of-way; thence South 01° 02' 08" East 38.39 feet on and along said right-of-way, traveling into the Northwest quarter of Section 20; thence South 88° 25' 57" West 40.19 feet to a point on the West line of the Northwest quarter of Section 20; thence North 01° 02' 08" West on and along aforementioned West line, 38.39 feet to the Point of Beginning of this Dedicated Right-of-Way description. Containing 0.179 acres, more or less.

Dedicated Right-of-Way:
Beginning at a Hendricks County Aluminum monument found marking the Southwest corner of the Southwest quarter Section 17, Township 16 North, Range 2 East of the Second Principal Meridian, Hendricks County, Indiana, and the Point of Beginning of this description; thence running North on and along the West line of the Southwest quarter of Section 17 bearing North 01° 22' 53" West 155.58 feet, dead, and measured North 01° 00' 22" West 155.53 feet to a point on said West line, marking the Northeast corner of the National Hot Rod Association tract as referenced in the caption; thence running East on and along the North line of the National Hot Rod Association bearing North 88° 42' 57" East, dead, and measured North 89° 10' 00" East a distance of 40.19 feet to a found 5/8" rebar with Kruse Consulting cap affixed, marking the intersection with the east right-of-way line of N. CR. 1000 E.; thence South 01° 02' 22" East 155.02 feet on and along said right-of-way; thence South 01° 02' 08" East 38.39 feet on and along said right-of-way, traveling into the Northwest quarter of Section 20; thence South 88° 25' 57" West 40.19 feet to a point on the West line of the Northwest quarter of Section 20; thence North 01° 02' 08" West on and along aforementioned West line, 38.39 feet to the Point of Beginning of this Dedicated Right-of-Way description. Containing 0.179 acres, more or less.

LINETYPE LEGEND:

(SF)	= SILT FENCE
X	= BARB WIRE FENCE
o	= CHAIN-LINK FENCE
H	= WOOD FENCE
W	= WATER LINE
STRM	= STORM SEWER LINE
SAN	= SANITARY SEWER LINE
GAS	= GAS LINE
UGE	= UNDERGROUND ELECTRIC LINE
OHE	= OVERHEAD ELECTRIC LINE
COMM	= COMMUNICATION LINE
T	= TELEPHONE LINE
UTELE	= UNDERGROUND TELEPHONE LINE
FO	= FIBER OPTIC LINE
W	= FIRE DEPARTMENT WATER SUPPLY
35' ESMT	= 35' EASEMENT LINE
30' ESMT	= 30' EASEMENT LINE
25' ESMT	= 25' EASEMENT LINE
20' ESMT	= 20' EASEMENT LINE
15' ESMT	= 15' EASEMENT LINE
10' ESMT	= 10' EASEMENT LINE
5' ESMT	= 5' EASEMENT LINE
ESMT	= EASEMENT LINE
000	= SWALE LINE
000	= EDGE OF WATER
35' SETBK	= 35' SETBACK LINE
30' SETBK	= 30' SETBACK LINE
25' SETBK	= 25' SETBACK LINE
20' SETBK	= 20' SETBACK LINE
15' SETBK	= 15' SETBACK LINE
10' SETBK	= 10' SETBACK LINE
5' SETBK	= 5' SETBACK LINE
SETBK	= SETBACK LINE
ROW	= RIGHT-OF-WAY LINE
UD	= SWALE UNDERDRAIN
CABLE	= CABLE TV LINE
FL>	= FLOW LINE

SYMBOL LEGEND:

◄	= STORM SEWER END SECTION
—	= SANITARY SEWER CLEANOUT
○	= CLEANHOLE
⊕	= MANHOLE
⊕	= CATCH BASIN
⊕	= CATCH BASIN
⊕	= CURB INLET
⊕	= FIRE HYDRANT
⊕	= PRESSURE RELIEF VALVE
⊕	= WATER VALVE
⊕	= WATER WELL
⊕	= GAS VALVE
⊕	= LIGHT POLE
⊕	= UTILITY POLE
⊕	= PROPERTY CORNER
⊕	= IRON ROD FOUND
⊕	= REBAR FOUND
⊕	= SURVEY POINT (SECTION CORNER)
⊕	= BENCHMARK
⊕	= SOIL BORING
741.25	= NEW GRADE ELEVATION
x 741.25	= EXISTING GRADE ELEVATION
▬	= STRAW BALE DAM
⊕	= ROCK DAM
⊕	= SIGN
⊕	= STOP SIGN
⊕	= HANDICAP SIGN
⊕	= ENTER ONLY SIGN
⊕	= EXIT ONLY SIGN
⊕	= DO NOT ENTER SIGN
⊕	= EVERGREEN TREE
⊕	= DECIDUOUS TREE
⊕	= BUSH
⊕	= TEMPORARY CONSTRUCTION ENTRANCE
⊕	= GRASS PERMANENT SEEDING
⊕	= EROSION CONTROL BLANKET ON ALL SLOPES 3:1 OR GREATER

SITE NOTES:

HANDICAP RAMP CONSTRUCTION NOTES:

- ALL HANDICAP RAMPS SHALL MEET THE REQUIREMENTS OF THE AMERICAN DISABILITIES ACT, LATEST EDITION, FOR BASIC MATERIALS AND CONSTRUCTION METHODS. THE SECTIONS BELOW FOR VARIOUS ITEMS ARE TO CLARIFY THE INTENT OF THE REQUIREMENTS FOR THIS PROJECT. PLEASE NOTE THAT OTHER SECTIONS OF THE INDOT STANDARD SPECIFICATIONS MAY ALSO BE APPLICABLE.
- MINIMUM WIDTH OF CURB RAMP SHALL BE 4 FEET NOT INCLUDING FLARES. MAXIMUM SLOPE OF RAMPS SHALL BE 1:21.
- HANDICAP RAMPS ARE TO BE LOCATED AS SHOWN ON PLANS.
- TYPE 'E' RAMPS SHALL BE PROVIDED AT THE CENTERLINE OF RADIUS AT ALL CORNERS OF EVERY STREET INTERSECTION WHERE THERE IS AN EXISTING OR PROPOSED SIDEWALK AND CURB. IN CASE OF "T" INTERSECTION, A TYPE 'C' RAMP SHALL BE PROVIDED ADJACENT TO EACH CORNER RAMP. TYPE 'C' RAMPS ALSO SHALL BE PROVIDED AT WALK LOCATIONS AT MID-BLOCK IN VICINITY OF HOSPITALS, MEDICAL CENTERS OR ATHLETIC STADIUMS. THE USE OF DETAILS CONTRARY TO THOSE SHOWN HEREIN SHALL REQUIRE THE PRIOR WRITTEN APPROVAL OF THE GOVERNING JURISDICTION.
- SURFACE TEXTURE OF THE RAMP SHALL BE THAT OBTAINED BY A COARSE BROOMING TRANSVERSE TO THE SLOPE OF THE RAMP.
- RAMPS SHALL BE PROVIDED WHERE THE DRIVEWAY CURB EXTENDS ACROSS THE SIDEWALK.
- CARE SHALL BE TAKEN TO ASSURE A UNIFORM GRADE ON ALL RAMPS WITH NO BREAKS IN GRADE.
- DRAINAGE STRUCTURES SHALL NOT BE PLACED IN LINE WITH THE RAMPS EXCEPT WHERE EXISTING DRAINAGE STRUCTURES ARE BEING UTILIZED IN THE NEW CONSTRUCTION. LOCATION OF THE RAMPS SHALL TAKE PRECEDENCE OVER LOCATION OF DRAINAGE STRUCTURES.
- THE NORMAL GUTTER LINE PROFILE SHALL BE MAINTAINED THROUGH THE AREA OF THE RAMP.
- EXPANSION JOINTS FOR THE RAMP SHALL BE A MAXIMUM 1/2" WIDE. THE TOP OF THE JOINT FILLER FOR ALL RAMP TYPES SHALL BE FLUSH WITH THE ADJACENT CONCRETE.
- CROSSWALK AND STOP LINE MARKING, IF USED, SHALL BE LOCATED TO STOP TRAFFIC SHORT OF ALL RAMP CROSSINGS.
- SLOPE OF RAMP MAY BE WARPED WHEN FILED CONDITIONS WARRANT AND WHEN APPROVED BY THE GOVERNING JURISDICTION.

LOT COVERAGE

	ACRES	PERCENT
ASPHALT	1.845	60%
BUILDINGS	0.086	2.8%
SIDEWALK	0.016	0.5%
PERVIOUS	1.123	36.6%
TOTAL LOT	3.07	100%

SITE NOTES:

GENERAL NOTES:

- REFER TO THE INDIANA DEPARTMENT OF TRANSPORTATION (INDOT) STANDARD SPECIFICATIONS, LATEST EDITION, FOR BASIC MATERIALS AND CONSTRUCTION METHODS. THE SECTIONS BELOW FOR VARIOUS ITEMS ARE TO CLARIFY THE INTENT OF THE REQUIREMENTS FOR THIS PROJECT. PLEASE NOTE THAT OTHER SECTIONS OF THE INDOT STANDARD SPECIFICATIONS MAY ALSO BE APPLICABLE.
- ALL RADII SHALL BE 5 FOOT UNLESS NOTED OTHERWISE ON PLANS.
- CONTRACTOR TO VERIFY EXACT LOCATION AND INVERT OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
- STORM SEWER PIPE OF OTHER MATERIAL OR MATERIAL NOT MEETING THESE SPECIFICATIONS SHALL REQUIRE THE PRIOR WRITTEN APPROVAL OF THE ENGINEER.
- THE CONTRACTOR SHALL SUBMIT INFORMATION TO THE APPROPRIATE JURISDICTIONAL CONTACT SHOWING CONFORMANCE WITH THESE SPECIFICATIONS UPON REQUEST.

PAVEMENT CONSTRUCTION:

- THE INDIANA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, LATEST EDITION, SHALL APPLY TO WORKMANSHIP AND MATERIALS IN CONSTRUCTION OF SUBGRADE, PAVEMENT, CURBS AND WALKS.
- PREPARE THE SUBGRADE IN ACCORDANCE WITH INDOT SECTION 207. NO TRAFFIC WILL BE PERMITTED ON THE PREPARED SUBGRADE PRIOR TO PAVING.
- BITUMINOUS PAVEMENT IN ACCORDANCE WITH INDOT SECTION 403.
- FINISHING EARTH GRADED SHOULDERS, DITCHES AND SLOPES IN ACCORDANCE WITH INDOT SECTION 208.

CONCRETE PAVEMENT AND WALKS:

- SEE DETAIL FOR TYPE AND DETAILS.
- CONCRETE SHALL BE READY MIXED PORTLAND CEMENT AND WATER CONFORMING TO ASTM C-150. AGGREGATES SHALL CONFORM TO ASTM C-33. COMPRESSIVE STRENGTH OF CONCRETE AT 28 DAYS SHALL BE 4000 P.S.I. WHERE REQUIRED, REINFORCEMENT SHALL BE WELDED STEEL WIRE FABRIC CONFORMING TO ASTM A-185.
- ALL EXTERIOR CONCRETE SHALL CONTAIN 6% ± 1% AIR ENTRAINMENT.

APPLICATION:

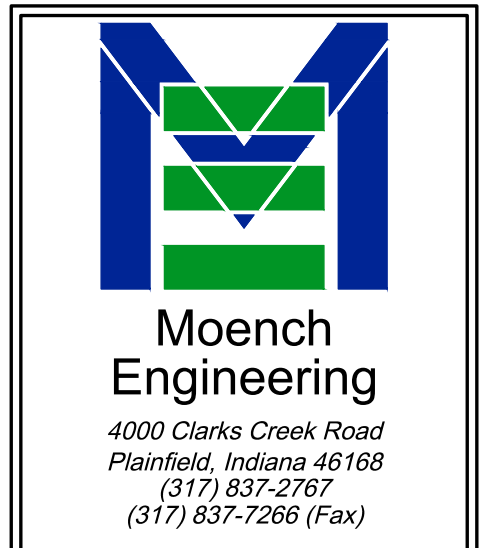
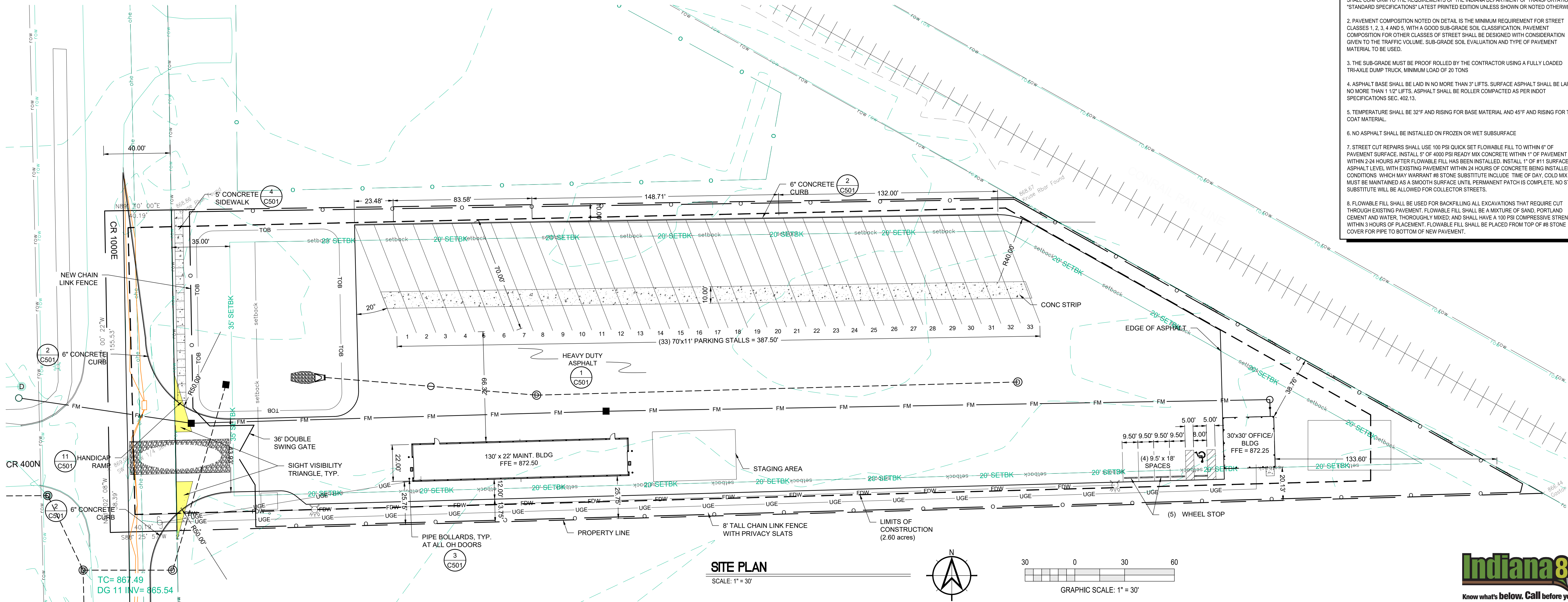
- PLACE CONCRETE ONLY ON A MOIST, COMPACT SUBGRADE OR BASE FREE FROM LOOSE MATERIAL. PLACE NO CONCRETE ON MUDDY OR FROZEN SUBGRADE IN ACCORDANCE WITH INDOT SECTION 604 AND 605.
- CONCRETE SHALL BE DEPOSITED SO AS TO REQUIRE AS LITTLE REHANDLING AS PRACTICAL. WHEN CONCRETE IS TO BE PLACED AT AN ATMOSPHERIC TEMPERATURE OF 35 DEGREES OR LESS, PARAGRAPH 702.10 OF THE INDOT SPECIFICATIONS SHALL APPLY.
- EXCEPT AS OTHERWISE SPECIFIED, CURE ALL CONCRETE BY ONE OF THE METHODS DESCRIBED IN INDOT SECTION 501.17.

PARKING LOT STRIPING:

- PAINT MATERIAL SHALL COMPLY WITH FEDERAL SPECIFICATION TT-P-155A FOR TRAFFIC PAINT WITHOUT GLASS SPHERES. (COLOR BY OWNER SELECTION).
- SUBCONTRACTOR TO PERFORM ALL FIELD LAYOUT WORK NECESSARY TO ACHIEVE STRAIGHT AND TRUE LINES. ASPHALT MUST BE CLEANED WITH POWER BROOM AND HAND BROOM TO REMOVE LOOSE MATERIAL BEFORE STRIPING. THE SUBCONTRACTOR IS TO PROVIDE BARRIERS TO PREVENT MARKING OF LINES BY VEHICLES UNTIL PAINT HAS DRIED. STRIPING PAINT SHALL BE APPLIED AT THE MINIMUM RATE OF ONE GALLON PER 100 SQUARE FEET OF PAINT (BASED ON 50% SOLIDS) AT A WIDTH OF FOUR INCHES.

STREET PAVEMENT NOTES:

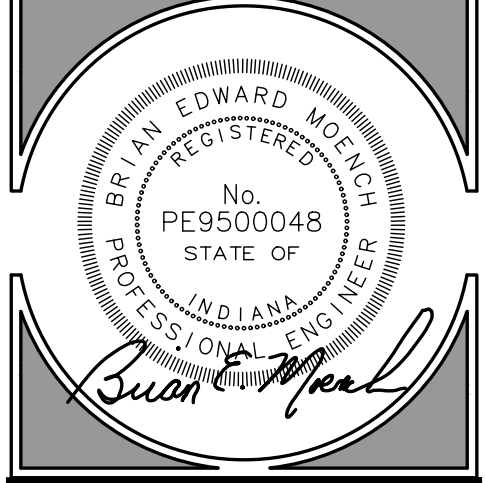
- MATERIALS AND CONSTRUCTION FOR STREETS, WALKS, CURBS AND STORM WATER SEWERS SHALL CONFORM TO THE REQUIREMENTS OF THE INDIANA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS" LATEST PRINTED EDITION UNLESS SHOWN OR NOTED OTHERWISE.
- PAVEMENT COMPOSITION NOTED ON DETAIL IS THE MINIMUM REQUIREMENT FOR STREET CLASSES 1, 2, 3, 4 AND 5. WITH A GOOD SUB-GRADE SOIL CLASSIFICATION. PAVEMENT COMPOSITION FOR OTHER CLASSES OF STREET SHALL BE DESIGNED WITH CONSIDERATION GIVEN TO THE TRAFFIC VOLUME, SUB-GRADE SOIL EVALUATION AND TYPE OF PAVEMENT MATERIAL TO BE USED.
- THE SUB-GRADE MUST BE PROOF ROLLED BY THE CONTRACTOR USING A FULLY LOADED TRI-AXLE DUMP TRUCK, MINIMUM LOAD OF 20 TONS.
- ASPHALT BASE SHALL BE LAID IN NO MORE THAN 3" LIFTS. SURFACE ASPHALT SHALL BE LAID IN NO MORE THAN 1 1/2" LIFTS. ASPHALT SHALL BE ROLLER COMPACTED AS PER INDOT SPECIFICATIONS SEC. 402.13.
- TEMPERATURE SHALL BE 32°F AND RISING FOR BASE MATERIAL AND 45°F AND RISING FOR TOP COAT MATERIAL.
- NO ASPHALT SHALL BE INSTALLED ON FROZEN OR WET SUBSURFACE.
- STREET CUT REPAIRS SHALL USE 100 PSI QUICK SET FLOWABLE FILL TO WITHIN 6" OF PAVEMENT SURFACE. INSTALL 5" OF 4000 PSI READY MIX CONCRETE WITHIN 1' OF PAVEMENT WITHIN 24 HOURS AFTER FLOWABLE FILL HAS BEEN INSTALLED. INSTALL 1" OF #11 SURFACE ASPHALT LEVEL WITH EXISTING PAVEMENT WITHIN 24 HOURS OF CONCRETE BEING INSTALLED. CONDITIONS WHICH MAY WARRANT AS STONE SUBSTITUTE INCLUDE: TIME OF DAY, COLD MIX MUST BE MAINTAINED AS A SMOOTH SURFACE UNTIL PERMANENT PATCH IS COMPLETE. NO STONE SUBSTITUTE WILL BE ALLOWED FOR COLLECTOR STREETS.
- FLOWABLE FILL SHALL BE USED FOR BACKFILLING ALL EXCAVATIONS THAT REQUIRE CUT THROUGH EXISTING PAVEMENT. FLOWABLE FILL SHALL BE A MIXTURE OF SAND, PORTLAND CEMENT AND WATER, THOROUGHLY MIXED, AND SHALL HAVE A 100 PSI COMPRESSIVE STRENGTH WITHIN 3 HOURS OF PLACEMENT. FLOWABLE FILL SHALL BE PLACED FROM TOP OF #8 STONE COVER FOR PIPE TO BOTTOM OF NEW PAVEMENT.



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LIONS TRANS INC. (BROWNSBURG)
4005 N CR 1000 E
BROWNSBURG, IN 46122

SITE PLAN



REVISIONS:

NO.	DESCRIPTION	DATE
0	SUBMITTED FOR REVIEW	11/5/21
1	REVISED PER ISDH COMMENTS	12/3/21
2	REVISED TO ABOVE GROUND STORAGE	11/22/22
3	REVISED PER TOWN COMMENTS	9/09/24
4	REVISED PER TOWN COMMENTS	12/11/24
5	Revised Storm Outlet	9/26/25
6	REVISED PER TOWN COMMENTS	11/06/25

DRAWN BY: JBF
CHECKED BY: BEM
PROJECT NUMBER: 21346
DATE: 1/13/22
SHEET NUMBER:
C201



National Flood Hazard Layer FIRMette



Legend

SEE FIR REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS

- Without Base Flood Elevation (BFE) Zone A, C, D, X
- With BFE or Depth Zone AE, AH, VE, AV
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD

- 0.2% Annual Chance Flood Hazard, Areas of 1% Annual Chance Flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
- Future Conditions 1% Annual Chance Flood Hazard Zone X
- Area with Reduced Flood Risk due to Levee See Notes Zone F
- Area with Flood Risk due to Levee Zone D

OTHER AREAS

- Area of Minimal Flood Hazard Zone X
- Effective LOMRs
- Area of Undetermined Flood Hazard Zone D

GENERAL STRUCTURES

- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

Cross Sections with 1% Annual Chance

- Water Surface Elevation
- Coastal Tract
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Tract Baseline
- Profile Baseline
- Hydrographic Feature

OTHER FEATURES

- Digital Data Available
- No Digital Data Available
- Unmapped

MAP PANELS

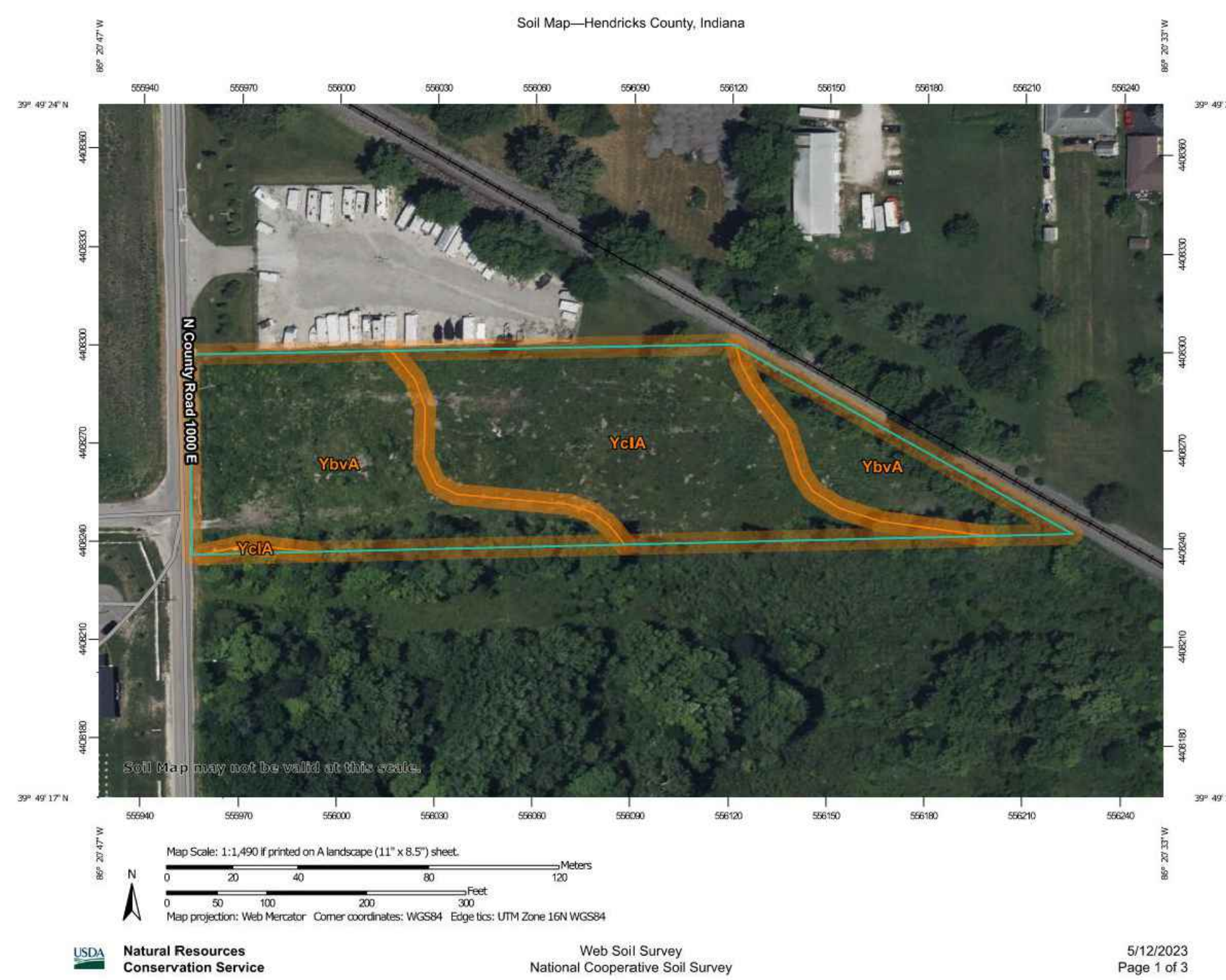
- The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards.

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 7/20/2022 at 4:21 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIR panel number, and FIR effective date. Map images for unmapped and unclassified areas cannot be used for regulatory purposes.

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020



Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ybva	Brookston silty clay loam-Urban land complex, 0 to 2 percent slopes	1.8	53.2%
Yc1a	Crosby silt loam, fine-loamy subsoil-Urban land complex, 0 to 2 percent slopes	1.5	46.8%
Totals for Area of Interest		3.3	100.0%

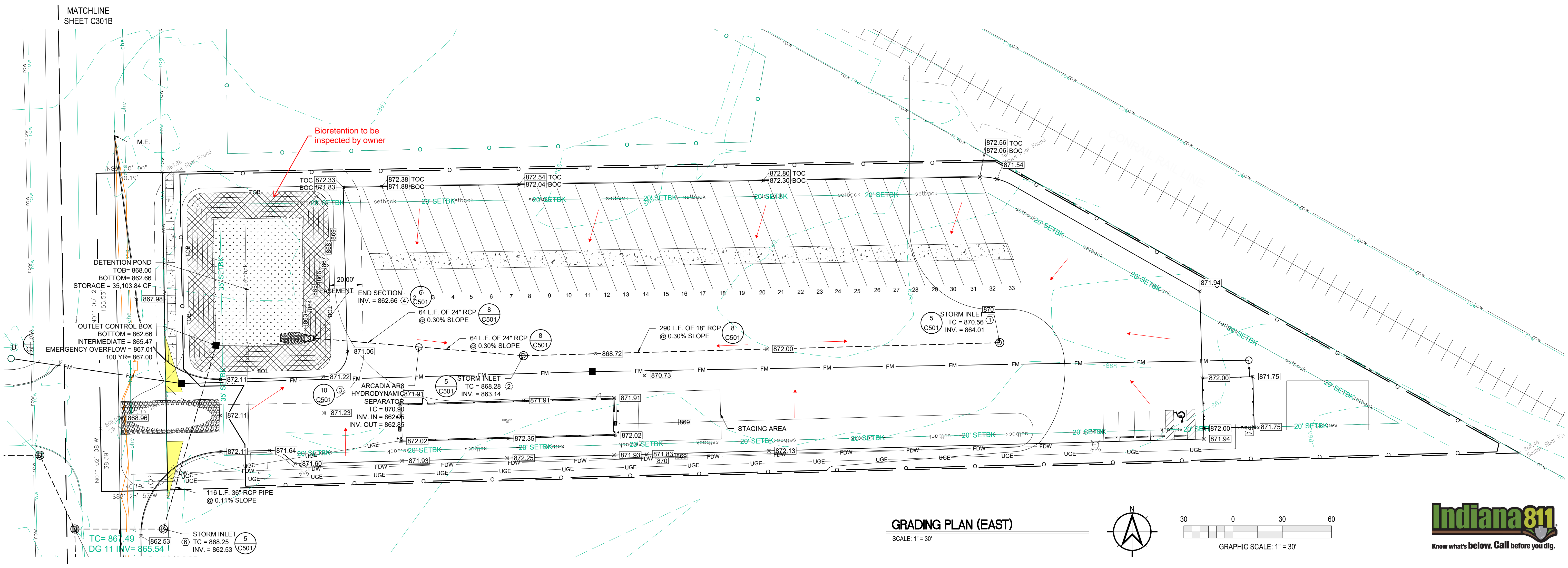
FLOOD ZONE DESIGNATION:

THIS LOT LIES ENTIRELY IN FLOOD HAZARD ZONE "X" AS SCALES FROM THE FLOOD INSURANCE RATE MAP (FIRM) FOR:

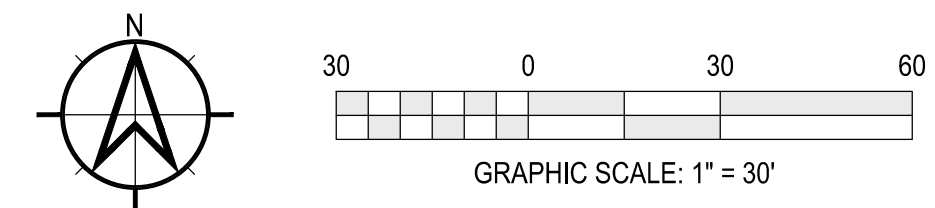
HENDRICKS COUNTY, INDIANA
 COMMUNITY NAME: TOWN OF BROWNSBURG
 COMMUNITY NUMBER: 180087
 PANEL NUMBER: C0179E
 DATED: JUNE 15, 2022

STAGE STORAGE TABLE

ELEV	AREA (sq. ft.)	DEPTH (ft)	AVG END INC. VOL. (cu. ft.)	AVG END TOTAL VOL. (cu. ft.)	CONIC INC. VOL. (cu. ft.)	TOTAL VOL. (cu. ft.)
862.660	3,978.76	N/A	N/A	0.00	0.00	0.00
863.000	4,250.00	0.340	1398.89	1398.89	1398.84	1398.64
864.000	5,096.00	1.000	4673.00	6071.89	4666.61	6065.24
865.000	6,013.14	1.000	5554.57	11626.46	5548.25	11613.49
866.000	6,990.27	1.000	6501.70	18128.16	6495.58	18109.07
867.000	8,023.94	1.000	7507.10	25635.27	7501.16	25610.23
868.000	9,114.16	1.000	8569.05	34204.31	8563.26	34173.50



GRADING PLAN (EAST)
 SCALE: 1" = 30'



GRADING NOTES:

GENERAL GRADE NOTES:

- REFER TO THE INDIANA DEPARTMENT OF TRANSPORTATION (INDOT) STANDARD SPECIFICATIONS, LATEST EDITION, FOR BASIC MATERIALS AND CONSTRUCTION METHODS. THE SECTION BELOW FOR VARIOUS ITEMS ARE TO CLARIFY THE INTENT OF THE REQUIREMENTS FOR THIS PROJECT. PLEASE NOTE THAT OTHER SECTIONS OF THE INDOT STANDARD SPECIFICATIONS MAY ALSO BE APPLICABLE.
- FILL MATERIAL SHALL CONSIST OF EARTH OBTAINED FROM CUT AREAS, BORROW PITS OR OTHER APPROVED SOURCES. EARTH SHALL BE FREE FROM ORGANIC MATTER AND OTHER DELETERIOUS SUBSTANCES AND LARGE ROCKS. THE FILL MATERIAL SHALL BE PLACED IN LAYERS NOT TO EXCEED SIX INCHES FOLLOWING COMPACTION. PROPER MOISTURE CONTENT OF FILL MATERIAL WILL BE SUCH TO ACHIEVE SPECIFIED COMPACTION DENSITY. ALL FILL BENEATH PAVED AREAS, FLOOR SLABS AND FUTURE BUILDINGS SHALL BE COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY PER ASTM D-1557. FIELD COMPACTION TEST SHALL BE RUN ON EACH LIFT. IN FULL SECTIONS, THE REQUIRED COMPACTION ON EACH LIFT SHALL BE IN ACCORDANCE WITH INDOT SECTION 211.
- MAXIMUM LAWN SLOPE IS 3:1.
- THE CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES TO LOCATE MAINS, CONDUITS, SERVICE LINES, ETC. IN THE AFFECTED CONSTRUCTION AREA EXISTING UTILITY STRUCTURES ARE SHOWN HERE IN ACCORDANCE WITH AVAILABLE INFORMATION. THE LOCATION AND PROJECTION OF UTILITY STRUCTURES, THEIR SUPPORT AND MAINTENANCE DURING CONSTRUCTION IN COOPERATION WITH APPLICABLE UTILITY COMPANY IS THE EXPRESSED RESPONSIBILITY OF THE CONTRACTOR.
- ALL SPOT ELEVATIONS ARE TO FINISHED GRADE.
- ALL EXISTING MAN-HOLE CASTINGS TO BE ADJUSTED TO FINISH GRADE.
- COMPACT "B" BORROW BACK FILL REQ'D. OVER ALL UTILITIES IN PAVED AREAS.
- DISTURBED AREAS TO BE GRADED TO FINAL GRADE AND RECEIVE A MIN OF 4" TOPSOIL.
- STABILIZATION MUST BE INITIATED BY END OF THE 7TH DAY THE AREA IS LEFT IDLE AND STABILIZATION SHALL BE COMPLETED WITHIN 14 DAYS AFTER INITIATION.
- FINAL STABILIZATION IS ACHIEVED WHEN ALL LAND DISTURBING ACTIVITIES HAVE BEEN COMPLETED AND A UNIFORM PERENNIAL VEGETATIVE COVER WITH DENSITY OF 70% ON ALL UNPAVED SURFACES.
- WATER SHOULD BE PUMPED THROUGH BMP AND INTO THE DETENTION POND.

REINFORCED CONCRETE PIPE:

- REINFORCED CONCRETE PIPE SHALL BE CLASS III, IV OR V AS SPECIFIED IN ASTM C-76.
- REINFORCED ELLIPTICAL CONCRETE PIPE SHALL BE CLASS HE-III OR HE-IV AS SPECIFIED IN ASTM C-507.
- LIFT HOLES ARE NOT ALLOWED FOR PIPE LESS THAN 24 INCHES IN DIAMETER. A MAXIMUM OF TWO LIFT HOLES ARE ALLOWED FOR PIPE 24 INCH IN DIAMETER OR LARGER. LIFT HOLES SHALL BE REPAIRED ACCORDING TO MOST RECENT INDOT STANDARD SPECIFICATIONS.
- FITTINGS AND SPECIALTIES SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS FOR THE TYPE OF PIPE BEING USED.
- EACH PIPE SECTION SHALL BE MARKED WITH DATE OF MANUFACTURE, SIZE AND CLASS OF PIPE, SPECIFICATION DESIGNATION, MANUFACTURER AND PLANT IDENTIFICATION.
- PIPE SHALL BE FURNISHED WITH A BELL OR GROOVE ON ONE END OF A UNIT OF PIPE AND A SPIGOT OR TONGUE ON THE ADJACENT END OF THE ADJOINING PIPE. ALL JOINTS SHALL HAVE A GROOVE ON THE SPIGOT FOR PLACEMENT OF A RUBBER "O-RING" OR PROFILE GASKET IN ACCORDANCE WITH ASTM C-443. THE GASKET SHALL BE A CONTINUOUS RING WHICH FITS SNUGLY INTO THE ANNULAR SPACE BETWEEN THE OVERLAPPING SURFACES OF THE ASSEMBLED PIPE JOINT.

Moench Engineering
 4000 Clarks Creek Road
 Plainfield, Indiana 46168
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 (317) 837-7266 (Fax)

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LIONS TRANS INC. (BROWNSBURG)
 4005 N CR 1000 E
 BROWNSBURG, IN 46122

GRADING PLAN (EAST)

REVISIONS:

NO.	DESCRIPTION	DATE
0	SUBMITTED FOR REVIEW	11/5/21
1	REVISED PER ISDH COMMENTS	12/3/21
2	REVISED TO ABOVE GROUND STORAGE	11/22/22
3	REVISED PER TOWN COMMENTS	9/09/24
4	REVISED PER TOWN COMMENTS	12/11/24
5	Revised Storm Outlet	9/26/25
6	REVISED PER TOWN COMMENTS	11/06/25

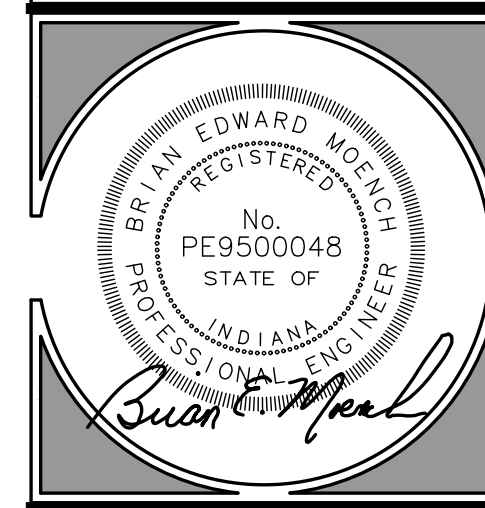
DRAWN BY: JBF
 CHECKED BY: BEM
 PROJECT NUMBER: 21346
 DATE: 1/13/22
 SHEET NUMBER:
C301A



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 Plainfield, Indiana 46168
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 (317) 837-7266 (Fax)

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 4005 N CR 1000 E
 BROWNSBURG, IN 46122
 GRADING PLAN (WEST)

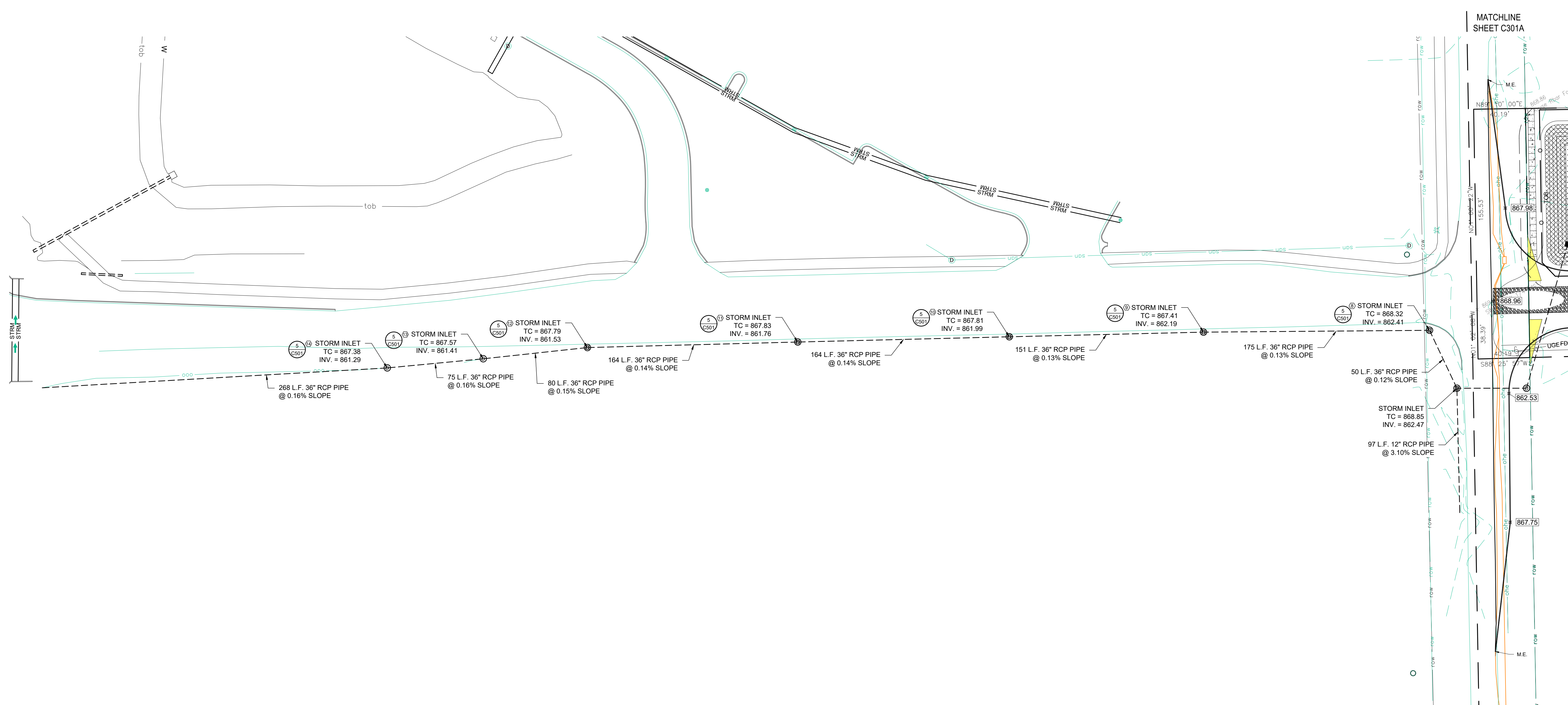


REVISIONS:

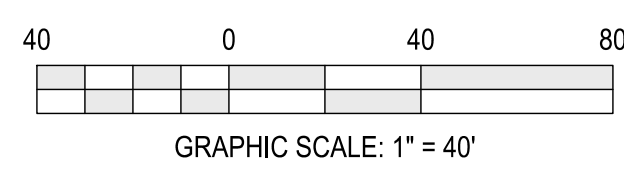
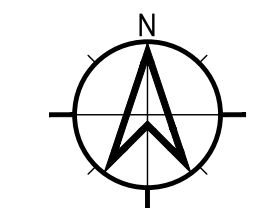
NO.	DESCRIPTION	DATE
0	SUBMITTED FOR REVIEW	11/5/21
1	REVISED PER ISDH COMMENTS	12/3/21
2	REVISED TO ABOVE GROUND STORAGE	1/12/22
3	REVISED per TOWN COMMENTS	9/09/24
4	REVISED per TOWN COMMENTS	12/11/24
5	Revised Storm Outlet	9/26/25
6	REVISED per TOWN COMMENTS	11/06/25

DRAWN BY: JBF
 CHECKED BY: BEM
 PROJECT NUMBER: 21346
 DATE: 1/13/22
 SHEET NUMBER:

C301B



GRADING PLAN (WEST)
 SCALE: 1" = 40'



SECTION	TITLE	SHEET
A1	Index of the location of required plan elements in the construction plan	C000
A2	A vicinity map depicting the project site location in relationship to recognizable local landmarks, towns, and major roads	C000
A3	Narrative of the nature and purpose of the project	C303
A4	Latitude and longitude to the nearest fifteen (15) seconds	C000
A5	Legal description of the project site	C201
A6	11x17 inch plat showing building lot numbers/boundaries and road layout/names	C303
A7	Boundaries of the one hundred (100) year floodplains, floodway fringes, and floodways	C301
A8	Land use of all adjacent properties	C303
A9	Identification of a U.S. EPA approved or established TMDL	C303
A10	Name(s) of the receiving water(s)	C303
A11	Identification of discharges to a water on the current 303(d) list of impaired waters and the pollutant(s) for which it is impaired	C303
A12	Soils map of the predominate soil types	C301
A13	Identification and location of all known wetlands, lakes, and water courses on or adjacent to the project site (construction plan, existing site layout)	C303
A14	Identification of any other state or federal water quality permits or authorizations that are required for construction activities	C303
A15	Identification and delineation of existing cover, including natural buffers	C301
A16	Existing site topography at an interval appropriate to indicate drainage patterns	C301
A17	Location(s) where run-off enters the project site	C301
A18	Location(s) where run-off discharges from the project site prior to land disturbance	C301
A19	Location of all existing structures on the project site	N/A
A20	Existing permanent retention or detention facilities, including manmade wetlands, floodways:	N/A
A21	Locations where storm water may be directly discharged into ground water, such as abandoned wells, sinkholes, or karst features	C303
A22	Size of the project area expressed in acres	C000
A23	Total expected land disturbance expressed in acres	C000
A24	Proposed final topography	C301
A25	Locations and approximate boundaries of all disturbed areas	C201
A26	Locations, size, and dimensions of all storm water drainage system such as culverts, storm water sewer, and conveyance channels	C301
A27	Locations of specific points where storm water and non-storm water discharges will leave the project site	C301
A28	Location of all proposed site improvements, including roads, utilities, lot delineation and identification, proposed structures, and common areas	C201
A29	Location of all on-site and off-site soil stockpiles and borrow areas	N/A
A30	Construction support activities that are expected to be part of the project	C302
A31	Location of any in-stream activities that are planned for the project including, but not limited to, stream crossings and pump arounds	N/A
B1	Description of the potential pollutant generating sources and pollutants, including all potential non-storm water discharges	C303
B2	Stable construction entrance locations and specifications	C302
B3	Specifications for temporary and permanent stabilization	C302
B4	Sediment control measures for concentrated flow areas	C301
B5	Sediment control measures for sheet flow areas	C302
B6	Run off control measures	C302
B7	Storm water outlet protection location and specifications	C302/201
B8	Grade stabilization structure locations and specifications	N/A
B9	De-watering applications and management methods	C303
B10	Measures utilized for work within water bodies	N/A
B11	Maintenance guidelines for each proposed storm water quality measure	C303
B12	Planned construction sequence that describes the implementation of storm water quality measures in relation to land disturbance	C303
B13	Provisions for erosion and sediment control on individual residential building lots regulated under the proposed project	N/A
B14	Material handling and spill prevention and spill response plan meeting the requirements in 327 IAC 2-6.1	C303
B15	Material handling and storage procedures associated with construction activity	C303
C1	Description of pollutants and their sources associated with the proposed land use	C303
C2	Description of proposed post-construction storm water measures	C303
C3	Plan details for each storm water measure	C301/501
C4	Sequence describing storm water measure implementation	C303
C5	Maintenance guidelines for proposed post-construction storm water measures	C303
C6	Entity that will be responsible for operation and maintenance of the post-construction storm water measures	C302

NOTES:
"NA" - NON APPLICABLE

Construction Storm Water General Permit Notes Section A

A1 - Index of the location of required plan elements in the construction plan:
An index addressing the required elements within the drawing set is on C000 - Cover Sheet.

A2 - A vicinity map depicting the project site location in relationship to recognizable local landmarks, towns, and major roads:
A map showing the project in relationship to other areas of the county is on C000 - Cover Sheet.

A3 - Narrative of the nature and purpose of the project:
The project consists of the development of a new heavy duty asphalt parking lot with 36 truck and trailer stalls, a 2860 sq. ft. maintenance building, and 900 sq. ft. office building w/ employee parking. The site is located at 4005 North County Road 1000E in Brownsburg, Indiana 46112. Associated with the new improvements will be storm water management system consisting of overland flow, storm inlets, and retention/percolation basin with outlet control. (Shown on C303 - Construction Storm Water General Permit Notes).

A4 - Latitude and Longitude:
The latitude is 39°49'21"N and longitude is 86°20'42.19"W. (Shown on C000 - Cover Sheet)

A5 - Legal description of the project site:
A legal description of the overall parcel is on C201 - Site Plan

A6 - 11 x 17 inch plat showing building lot numbers/boundaries and road layout/names:
An 11x17 in. plan showing the overall property and new improvements is attached to this narrative.

A7 - Boundaries of the one hundred (100) year floodplains, floodway fringes, and floodways:
The 100 year floodway and floodway fringe is on C301 - Grading Plan and is based on best available information from the Indiana Department of Natural Resources.

A8 - Land use of all adjacent properties:
North - Commercial East - Railroad/Commercial
South - Undeveloped/Woods West - Residential/Agricultural
(Shown on C303 - Stormwater Pollution Prevention Plan)

A9 - Identification of a U.S. EPA approved or established TMDL:
Site to discharge stormwater into ground via percolation basin or through evaporation. Any discharge via the emergency spillway will likely evaporate/percolate prior to being received by White Lick Creek (NW01D2_05) which is EPA 303d listed, but has no established TMDL (Shown on C304 - Construction Storm Water General Permit Notes)

A10 - Name(s) of the receiving water(s):
Receiving water is White Lick Creek (NW01D2_05). (Shown on C303 - Stormwater Pollution Prevention Plan)

A11 - Identification of discharges to a water on the current 303(d) list of impaired waters and the pollutant(s) for which it is impaired:
The impaired condition of White Lick Creek is due to presence of Escherichia Coli (E. coli) (Noted on C304 - Construction Storm Water General Permit Notes)

A12 - Soils map of the predominate soil types:
The soils on this property are predominantly Brookston Silty Clay Loam-Urban Land Complex and Crosby Sil Loam.
Brookston Silty Clay Loam features wetness as the main limitation affecting use and management of this soil type. Crosby Sil Loam features slow permeability and available water capacity is high with moderate content of organic matter.
Both soils are fair to poor for use as subgrade material as well as shear strength, compaction, and stability, medium to high compressibility, moderate to low shrink-swell potential, subject to frost heave, and seasonal high water table. A soils map is on C301 - Grading Plan.

A13 - Identification and location of all known wetlands, lakes, and water courses on or adjacent to the project site (construction plan, existing site layout):
There are no known water courses on or adjacent to this site.

A14 - Identification on any other state or federal water quality permits or authorizations that are required for construction activities:
This phase of the project scope will not require any additional federal or state water permits as noted on C304 - Construction Storm Water General Permit Notes.

Construction Storm Water General Permit Notes Section A (cont'd)

A15 - Identification and delineation of existing cover, including natural buffers:
The site is almost entirely covered with thick/heavy vegetation and trees with partial remnants of an existing gravel drive. The delineation of the various surface coverage is on C301 - Grading Plan.

A16 - Existing site topography at interval appropriate to indicate drainage patterns:
The existing site topography is largely flat with minor relief at the southeast of the site. The existing and proposed contours are on C301 - Grading Plan.

A17 - Location(s) where run-off enters the project site:
As referenced above, the topography in this area is largely flat resulting in little to no potential for run-off entering the site from adjacent property. The existing contours are on C301 - Grading Plan.

A18 - Location(s) where run-off discharges from the project site prior to land disturbances:
The existing site topography is largely flat with minor relief at the southeast of the site. The existing contours are on C301 - Grading Plan.

A19 - Location(s) of all existing structures on the project site:
The existing site is a vacant lot with no existing structures as depicted on C301 - Grading Plan.

A20 - Existing permanent retention or detention facilities, including manmade wetlands, designed for the purpose of stormwater management:
There are no existing retention facilities on site as depicted on C301 - Grading Plan.

A21 - Locations where storm water may be directly discharged into ground water, such as abandoned wells, sinkholes, or karst features:
There are no locations on property where storm water may directly discharge into the groundwater as illustrated on C301 - Grading Plan.

A22 - Size of the project expressed in acres:
The total project area is 3.07 acres as noted on C000 - Cover Sheet.

A23 - Total expected land disturbance expressed in acres:
The total disturbed area is 2.60 acres as noted on C000 - Cover Sheet.

A24 - Proposed final topography:
The final topography is on C301 - Grading Plan and is illustrated as spot elevations and contours.

A25 - Locations and approximate boundaries of all disturbed areas:
The total disturbed area is 2.60 acres as noted on C000 - Cover Sheet and shown as the Limits of Construction on C201 - Site Plan.

A26 - Locations, size and dimensions of all stormwater drainage systems such as culverts, stormwater sewer, and conveyance channels:
The stormwater is conveyed by overland flow, underground storm pipes, and retention pond. These are shown on C301 - Grading Plan.

A27 - Locations of specific points where stormwater and non-stormwater discharges will leave the project site:
Stormwater discharge from the site will be via an emergency spillway from the retention pond at the east end of the site and sanitary discharge will be via a pump and force main at the west end of the site (Shown on C301 - Grading Plan & C402 Sanitary Force Main Plan & Profile).

A28 - Location of all proposed site improvements, including roads, utilities, lot delineation and identification, proposed structures, and common areas:
All the surface improvements including buildings, impervious areas, new surface finishes, etc. are on C201 - Site Plan for horizontal notations and C301 - Grading Plan for elevations.

A29 - Location of all on-site and off-site soil stockpiles and borrow areas:
The soil storage area will be on site located at the east end of the site (west of the pond). All soil will be placed in the final location or hauled off upon completion of construction as shown on C302 - Erosion Control Plan.

A30 - Construction support activities that are expected to be part of the project:
Any construction support area will be within the limits of disturbance and used as directed by the contractor. Since they are within the limits of disturbance, there will be no impact sensitive areas.

A31 - Location of any on-stream activities that are planned for the project including, but not limited to, stream crossings and pump arounds:
There are no in stream activities associated with this project.

Construction Storm Water General Permit Notes Section B

B1 - Description of the potential pollutant generating sources and pollutants, including all potential non-storm water discharges:
1. Concrete Washout Area: Specific concrete washout area shall be established and labeled.
a) The specific concrete wash out will be in a provided lined roll off box at a specific location near the entrance to the job site.
b) The lined roll off box will be placed on stable soil with a stone approach.
c) Once the lined roll off box is full, it will be removed from the site and discarded as clean fill once solid. A new lined roll off box will replace the one removed.
2. Construction Mobile Equipment Fluid
a) All fueling of equipment will be managed and completed on a stone surface.
b) Daily observation of all equipment for inspection of leaks or potential leaks of any fluids.
c) Any observed fluid leaks are to be handled immediately with the equipment being moved to a stable stone surface and placed out of operation until maintenance is completed.
d) Spill kits are to be utilized once the equipment is moved to the stable stone surface to prevent leakage from penetrating the ground or impacting storm water runoff.
3. Construction Material Waste
a) All material waste is to be placed in provided roll off boxes as it is generated.
b) Full roll off boxes are to be removed and properly disposed of in a licensed facility.
c) No debris is to be stored on the ground surface at any time.
These items are noted on C303 - Stormwater Pollution Prevention Plan.

B2 - Stable construction entrance locations and specifications:
A stable construction entrance consisting of compacted subgrade, filter fabric and #2 stone is to be used for all construction traffic entering / exiting the site. The stone surface is to be maintained with new stone as necessary to maintain a solid drive surface. The location of the temporary construction entrance is shown on C302 for plan view and Sheet C502 for detail.

B3 - Specifications for temporary and permanent stabilization:
The provisions for temporary stabilization during construction as well as permanent stabilization are included in the drawing set. The information contains specific stabilization techniques for the conditions of the site as well as timing of installation.
For temporary construction stabilization, it is the Contractor responsibility to maintain the stabilization during the construction duration and until permanent stabilization is installed.
For permanent stabilization, it is expected installation to occur immediately after final grading of the soil surface. Permanent stabilization is to be maintained by the Owner until 75% effective cover is established on the soil surface.
The stabilization is noted on C302 - Erosion Control Plan.

B4 - Sediment control measures for concentrated flow areas:
The concentrated flow is protected at the pond inlet with riprap of minimum size being 6 inches and at the emergency spillway with stone dam as shown on C301 - Grading Plan and details on C501 & C502 - Sections and Details.

B5 - Sediment control measures for sheet flow areas:
Sediment control for sheet flow is handled at the project perimeter with silt fence. (Shown on C302 - Erosion Control Plan).

B6 - Run-off control measures:
Sediment control for sheet flow is handled at the project perimeter with silt fence. (Shown on C302 - Erosion Control Plan).

B7 - Stormwater outlet protection location and specifications:
The concentrated flow is protected at the pond outlet with the previously mentioned rock dam as shown on C302 - Erosion Control Plan.

B8 - Grade stabilization structure locations and specifications:
The grade on the site is largely flat and remain so post construction. There are no stabilization structures planned for this project as illustrated on C301 - Grading Plan.

B9 - Dewatering applications and management methods:
Any dewatering required will be directed to the low area of the site (east) where it can percolate into existing soil. (Noted C303 - Stormwater Pollution Prevention Plan)

B10 - Measures utilized for work within waterbodies:
This is not applicable to this project. (Noted C303 - Stormwater Pollution Prevention Plan)

B11 - Maintenance guidelines for each proposed stormwater quality measure:
The stormwater quality is by a bioretention pond that is to be cleaned of trash, mowed, trimmed and monitored regularly to maintain proper function of the pond. (C301 - Grading Plan)

B12 - Planned construction sequence that describes the implementation of stormwater quality measures in relation to land disturbance:
The construction sequence for installation of the erosion control measures and stormwater pollution prevention devices are detailed on C302 - Erosion Control Plan.

B13 - Provisions for erosion and sediment control on individual residential building lots regulated under the proposed project:
Not applicable to this project. (Noted C303 - Stormwater Pollution Prevention Plan)

B14 - Material handling and spill prevention and spill response plan meeting the requirements in 327 IAC 2-6.1:
The potential materials on site that could cause a spill response include fuels, petroleum fluids or other liquids as part of the construction equipment on site. If a spill occurs, immediate determination of the extent and emergency response requirements should be determined. Immediate containment of the spill with onsite spill kits should be completed. Once the spill is contained, contact is to be made to the Indiana Dept. of Environmental Mgmt., Office of Land Quality, Emergency Response Section: 1-888-233-7745 for in-state calls (toll free) within two hours of the spill. The contact should include the likelihood of damage to the waterways of the State of Indiana. This information is noted on C303 - Stormwater Pollution Prevention Plan.

B15 - Material handling and storage procedures associated with construction activity:
All construction debris and wastes are to be loaded directly into provided roll off boxes for proper disposal off site. In no terms is debris or waste to be stored on site awaiting disposal or burned on property. Liquid wastes such as concrete wash out is to be disposed in the appropriate concrete wash out lined roll off boxes as provided. This includes any mortar/masonry/concrete grout material. Once these containers are full, they are to be removed from the site and disposed of in a licensed facility. Roll off boxes are to be rotated empty for full boxes for the entire project duration.

Construction Storm Water General Permit Notes Section B

C1 - Description of pollutants and their sources associated with the proposed land use:
The post construction land use will have potential contaminants such as fuels, oils, grease, tires and other mobile equipment fluids. All materials, including mobile equipment will be stored on impervious surfaces during non-use or operation. (Noted on C303 - Stormwater Pollution Prevention Plan)


C2 - Description of proposed post-construction stormwater measures:
The post construction contaminants are minimized by impervious surfaces being directed to a bioretention pond designed to collect sediment and pollutants prior to any discharge that may overtop the emergency spillway. (Noted C303 - Stormwater Pollution Prevention Plan)

C3 - Plan details for each stormwater measure:
The post construction stormwater measures is primarily a bioretention pond as shown on C301 - Grading Plan and L101 - Landscape Plan.

C4 - Sequence describing stormwater measure implementation:
The sequence of installation for the post construction stormwater measure is part of construction sequencing shown C302 - Erosion Control Plan.

C5 - Maintenance guidelines for proposed post-construction stormwater measures:
An operations and maintenance manual are part of the submittal information under separate documentation.

C6 - Entity that will be responsible for operation and maintenance of the post-construction stormwater measures:
The responsible person for the post construction stormwater measures is the property owner as noted on C302 - Erosion Control Plan.




Moench Engineering
4000 Clarks Creek Road
Plainfield, Indiana 46168
(317) 837-2767
(317) 837-7266 (Fax)

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4005 N CR 1000 E
BROWNSBURG, IN 46122

STORM WATER POLLUTION PREVENTION PLAN

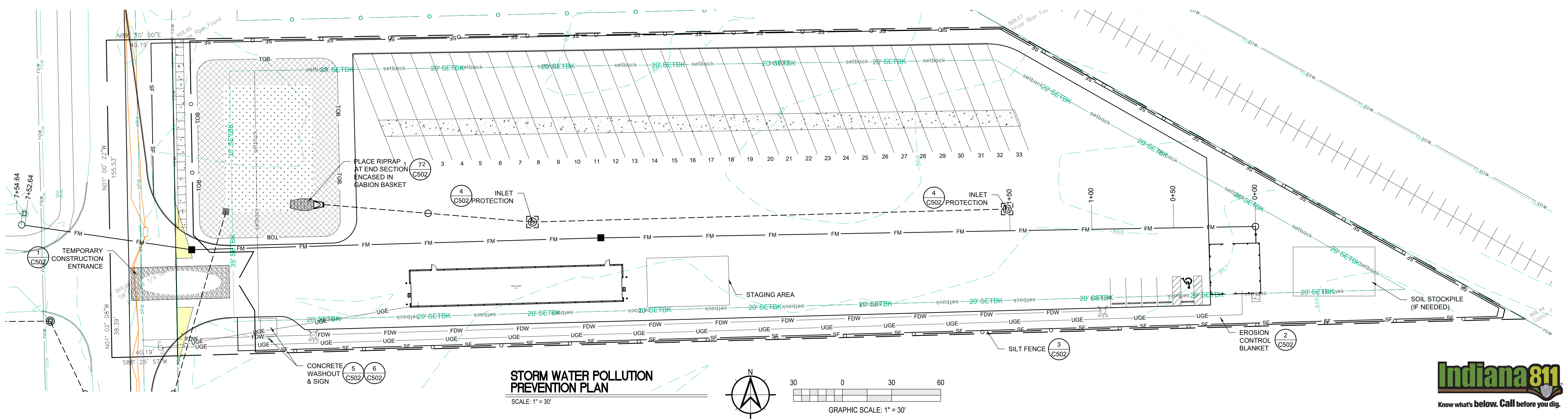


BRIAN EDWARD MOENCH
REGISTERED PROFESSIONAL ENGINEER
No. PE9500048
STATE OF INDIANA

NO.	REVISIONS:	DATE
0	SUBMITTED FOR REVIEW	11/5/21
1	REVISED PER ISDH COMMENTS	12/3/21
2	REVISED TO ABOVE GROUND STORAGE	11/22/22
3	REVISED PER TOWN COMMENTS	9/09/24
4	REVISED PER TOWN COMMENTS	12/11/24
5	REVISED STORM OUTLET	9/26/25
6	REVISED PER TOWN COMMENTS	11/06/25

DRAWN BY: JBF
CHECKED BY: BEM
PROJECT NUMBER: 21346
DATE: 1/13/22
SHEET NUMBER:

C303




Indiana 811
Know what's below. Call before you dig.

UTILITY CONTACT INFORMATION	
WATER COMPANY:	
NAME:	CITIZENS ENERGY
CONTACT NAME:	---
PHONE NUMBER:	(317) 924-3311
E-MAIL:	---
SANITARY SEWER COMPANY:	
NAME:	HENDRICKS CO. REGIONAL SEWER DIST.
CONTACT NAME:	---
PHONE NUMBER:	(317) 745-4928
E-MAIL:	---
ELECTRIC COMPANY:	
NAME:	DUKE ENERGY
CONTACT NAME:	---
PHONE NUMBER:	(317) 745-5473
E-MAIL:	---
GAS COMPANY:	
NAME:	VECTREN
CONTACT NAME:	---
PHONE NUMBER:	(800) 227-1376
E-MAIL:	---
TELEPHONE COMPANY:	
NAME:	AT&T
CONTACT NAME:	---
PHONE NUMBER:	(317) 272-6450
E-MAIL:	---

UTILITY NOTES:

SANITARY GENERAL SPECIFICATIONS:

1. (A) 100 PSI FLOWABLE FILL SHALL BE REQUIRED FOR ROAD CROSSINGS UNDER EXISTING PAVEMENT AND WITHIN FIVE (5) FEET OF THE PAVEMENT EDGE. STREET CUT REPAIRS SHALL USE 100 PSI FLOWABLE FILL TO WITHIN 6" OF PAVEMENT SURFACE. INSTALL 5" OF 4000 PSI READY MIX CONCRETE WITHIN 1" OF PAVEMENT 2-24 HOURS AFTER FLOWABLE FILL HAS BEEN INSTALLED. INSTALL 1" OF #1 SURFACE ASPHALT LEVEL WITH EXISTING PAVEMENT WITHIN 24 HOURS ON CONCRETE INSTALLATION.

(B) FLOWABLE FILL SHALL BE A MIXTURE OF SAND, PORTLAND CEMENT AND WATER, THOROUGHLY MIXED, AND SHALL HAVE 100 PSI COMPRESSIVE STRENGTH WITHIN 3 HOURS OF PLACEMENT. FLOWABLE FILL SHALL BE PLACED FROM TOP OF #8 STONE PIPE COVER TO BOTTOM OF NEW PAVEMENT.

(C) IN LOCATIONS OF NEW DEVELOPMENT, WHERE UTILITIES ARE INSTALLED PRIOR TO ROAD CONSTRUCTION, TRENCH BACKFILL UNDER FUTURE ROAD SHALL BE ENTIRELY #8 CRUSHED STONE FROM MANHOLES.

2. ALL OSHA SAFETY STANDARDS SHALL BE STRICTLY ENFORCED FOR PROTECTION OF WORKERS.

3. NO SEWER SYSTEM CONSTRUCTION MAY BEGIN UNTIL APPROVAL FROM I.D.E.M.

4. ONE SET OF I.D.E.M. APPROVED PLANS SHALL BE ON THE JOB SITE AT ALL TIMES

POLYVINYL CHLORIDE (P.V.C.) PIPE:

1. PIPE DIAMETERS OF 10 INCHES THROUGH 15 INCHES SHALL MEET OR EXCEED ALL THE REQUIREMENTS OF ASTM D-3034, AND SHALL HAVE A MINIMUM CELL CLASSIFICATION OF 12454-C. REFERENCE SHOULD BE MADE TO ASTM D-1784 FOR A SUMMARIZATION OF CELL CLASS PROPERTIES. PIPE DIAMETERS GREATER THAN 15 INCHES SHALL MEET OR EXCEED ALL REQUIREMENTS OF ASTM F-478, AND SHALL HAVE A MINIMUM CELL CLASSIFICATION OF 12454-C. P.V.C. RIBBED SEWER PIPE SHALL MEET OR EXCEED ALL REQUIREMENTS OF ASTM F-794 AND SHALL HAVE A MINIMUM CELL CLASSIFICATION OF 12454.

2. THE MINIMUM WALL THICKNESS FOR PIPES OF 10 INCHES THROUGH 15 INCHES IN DIAMETER SHALL CONFORM TO SDR-35, TYPE PSM, AS SPECIFIED IN ASTM D-3034. THE MINIMUM WALL THICKNESS FOR PIPE DIAMETERS GREATER THAN 15 INCHES SHALL CONFORM TO T-1 AS SPECIFIED IN ASTM F-478. P.V.C. PIPE SHALL HAVE A MINIMUM PIPE STIFFNESS OF 40 POUNDS PER SQUARE INCH FOR EACH DIAMETER WHEN MEASURED AT FIVE PERCENT DEFLECTION AND TESTED IN ACCORDANCE WITH ASTM D-2412.

3. PIPE JOINTS SHALL HAVE A BELL WALL, GASKET GROOVE AND SPIGOT WHICH IS INTEGRAL WITH THE PIPE. THE ASSEMBLY OF JOINTS SHALL BE IN ACCORDANCE WITH THE PIPE MANUFACTURERS' RECOMMENDATIONS AND ASTM D-3212. NO SOLVENT CEMENT JOINTS SHALL BE ALLOWED. GASKET MATERIAL SHALL BE CONSTRUCTED OF STYRENE BUTADIENE OR BUTYL RUBBER AND MEET THE REQUIREMENTS OF ASTM F-477.

4. EACH PIPE SECTION SHALL BE MARKED WITH THE NAME OF THE MANUFACTURER, TRADEMARK OR TRADENAME, NOMINAL PIPE SIZE, PRODUCTION / EXTRUSION CODE, MATERIAL AND CELL CLASS DESIGNATION AND ASTM NUMBER.

5. INSTALLATION SHALL BE IN ACCORDANCE WITH ASTM RECOMMENDED PRACTICE D-2321.

SANITARY SEWER NOTES:

1. TO STATES STANDARDS AND INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT REQUIREMENTS SHALL BE MET OR EXCEEDED FOR ALL DESIGN, MATERIALS AND CONSTRUCTION METHODS.

2. SANITARY SEWER MANHOLES SHALL BE MONOLITHIC PRECAST SECTIONS, INCLUDING THE BOTTOM SECTION. ALL SECTIONS SHALL BE PRECAST CONCRETE IN ACCORDANCE WITH ASTM C-478. ALL MANHOLE INLET CONNECTIONS SHALL BE LOCK JOINT FLEXIBLE SLEEVES CONFORMING TO ASTM C-923. ONLY PRECAST CONCRETE RINGS SHALL BE ALLOWED FOR CASTING RISERS. ALL MANHOLES, GRADE RINGS AND CASTING SHALL BE SEALED TO PREVENT INFILTRATION.

3. MANHOLE INVERTS SHALL BE SHAPED FOR FLOW CHANNELS WITH CONCRETE AND SMOOTHLY FINISHED BY A SEMI CIRCULAR SECTION CONFORMING TO THE INSIDE DIAMETER OF THE CONNECTING SEWERS. NO BRICK, ROCK OR SAND FILLERS WILL BE ALLOWED.

4. ALL MANHOLE COVERS SHALL BE TRAFFIC BEARING, NON-ROCKING DESIGN WITH NON-PENETRATING PICK HOLES.

5. SANITARY SEWERS SHALL BE POLYVINYL CHLORIDE (PVC) SDR 35 MEETING ASTM D3034 SPECIFICATIONS. ALL SEWER MAINS SHALL HAVE A MINIMUM DIAMETER OF 8". ALL PIPE SPECIFIED SHALL SUPPORT ANTICIPATED LOADS.

6. ALL JOINTS SHALL BE PUSH-ON TYPE (SLIP SEAL) OR SOLVENT WELD.

7. BEDDING FOR PVC PIPE SHALL CONFORM TO BEDDING CLASSES I, II OF III, AS DESCRIBED IN ASTM D2321, FLEXIBLE SEWER PIPE INSTALLATION REQUIREMENTS.

UTILITY NOTES (cont'd):

8. ALL SEWER PIPE SHALL BE LAID USING PIPE LASER EQUIPMENT FOR BOTH VERTICAL AND HORIZONTAL ALIGNMENT.

9. MINIMUM ALLOWABLE COVER SHALL BE 5'-0" OVER TOP OF PIPE.

10. ALL SEWER MAINS SHALL BE DEFLECTION TESTED WITH AN 11 POINT, 5% MANDREL AFTER COMPACTED AGGREGATE IS IN PLACE FOR ALL STREETS. FLEXIBLE PIPE WILL BE TESTED AFTER BACKFILL HAS BEEN IN PLACE FOR AT LEAST 30 DAYS. ALL PVC PIPE FAILING THE MANDREL TEST SHALL BE REROUNDED IN PLACE OR AN ALTERNATE METHOD APPROVED BY THE GOVERNING JURISDICTION IF REPAIR REQUIRED; SEWER SHALL BE RETESTED 30 DAYS AFTER REPAIR IS COMPLETE.

11. ALL SEWER MAINS SHALL BE LAMPED AT THE TIME THE MANDREL TEST IS CONDUCTED. ALL MAINS SHALL BE TRUE TO ALIGNMENT AND GRADE.

12. ALL SEWER MAINS AND LATERAL CONNECTIONS SHALL BE AIR TESTED IN ACCORDANCE WITH UNI-BELL UNI-8-85. MINIMUM TIME FOR THE AIR TEST SHALL BE FOR A 1.0 PSIG PRESSURE DROP. ALL SECTIONS FAILING AIR TEST SHALL BE REPAIRED AND RETESTED.

13. ALL SERVICE WYE BRANCHES SHALL BE INSTALLED AT THE TIME OF THE SEWER MAIN INSTALLATION. NO DIRECT TAPS WILL BE ALLOWED ON NEW MAIN CONSTRUCTION. NO VERTICAL CONNECTIONS WILL BE ALLOWED.

14. A SEPARATE (6" MINIMUM) SERVICE SHALL BE PROVIDED FOR EACH UNIT SERVED APPROXIMATELY SIX (6) FEET TO THE RIGHT OF THE LOT CENTERLINE. NO WYES SHALL BE ALLOWED, INCLUDING COMMONDUMINS.

15. THE MAXIMUM ALLOWABLE VERTICAL DISTANCE BETWEEN ANY INFLUENT LINE AND THE EFFLUENT MAIN SHALL BE 6" FOR TYPE 'A' AND 'C' MANHOLES. ANY DISTANCE GREATER THAN 6" SHALL REQUIRE A TYPE 'B' MANHOLE.

16. WHERE A SEWER EXTENSION OR IMPROVEMENT CONNECTS TO AN EXISTING SEWER OR MANHOLE, IT MUST BE LOCATED IN A STREET, ROAD OR HIGHWAY ROW AND NOT LOCATED IN SUCH A MANNER WHERE IT WILL CUT THROUGH LOTS OR DEVELOPMENTS.

17. ALL EXTENSIONS SHALL BE INSTALLED AT MINIMUM GRADES.

CONCRETE MANHOLE NOTES:

1. ALL MANHOLES SHALL BE NEGATIVE AIRE PRESSURE (VACUUM) TESTED AS PER ASTM C1244-93 STANDARD METHOD.

2. NO MANHOLES SHALL BE MORE THAN 14' FROM BACK OF CURB.

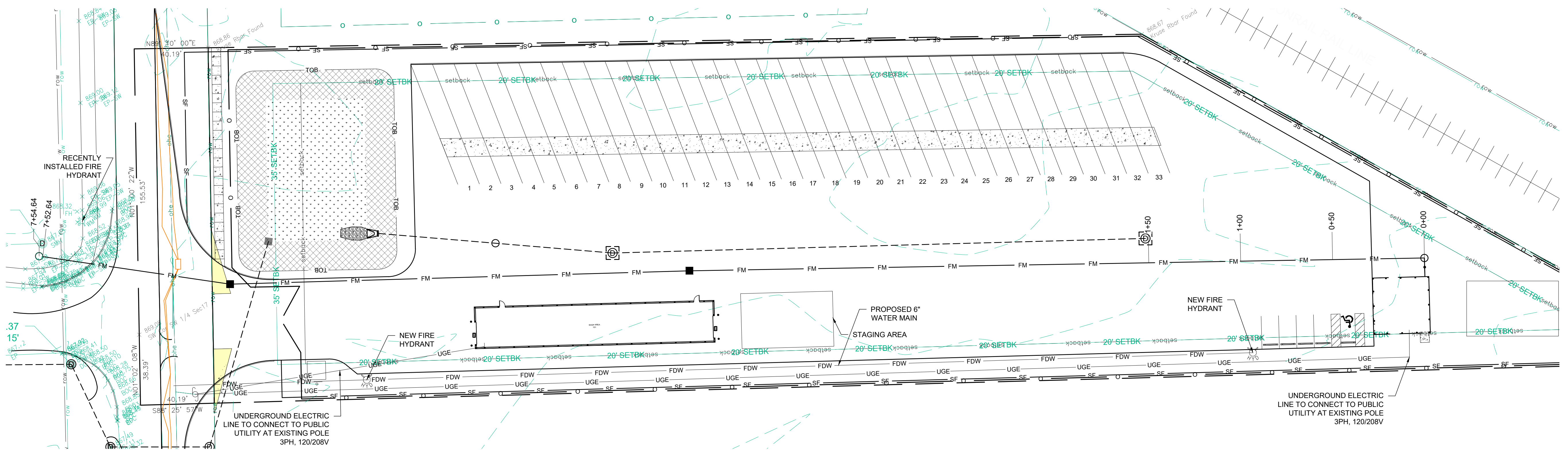
3. NO MANHOLE SHALL BE LOCATED IN ANY BACKYARD OR SIDE YARD. THEY MUST BE LOCATED IN THE FRONT YARD OR FRONT LOT THAT IS FRONTING A STREET.

4. ALL JOINTS IN MANHOLES SHALL BE SEALED TO PREVENT INFILTRATION BY USING A RUBBER 'O-RING' GASKET AND A 1/2" EXTRUDABLE PERFORMED GASKET BETWEEN ALL PRECAST SECTIONS.

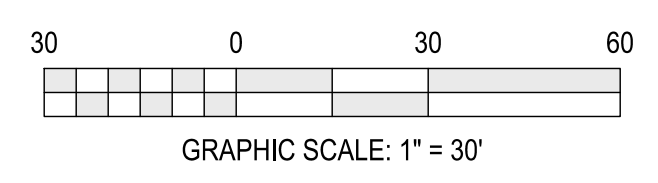
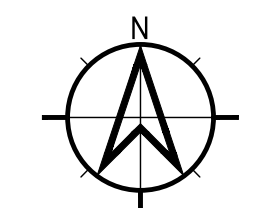
5. ANNULAR SPACE AROUND SANITARY SEWER AT POINT OF ENTRANCE INTO THE MANHOLE SHALL BE GROUDED COMPLETELY AROUND SANITARY SEWER, INSIDE AND OUTSIDE TO INSURE SMOOTH TRANSITION.

6. WHEN CONNECTING A NEW SEWER INTO AN EXISTING MANHOLE, THE EXISTING MANHOLE SHALL BE BROUGHT UP TO MEET PRESENT STANDARDS.

7. SECTION JOINTS ON PRECAST CONCRETE MANHOLES SHALL BE SEALED WITH BLACK TAR MASTIC 6" ABOVE AND 6" BELOW JOINT, ON MANHOLE EXTERIOR.



UTILITY PLAN
SCALE: 1" = 30'



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UTILITY PLAN



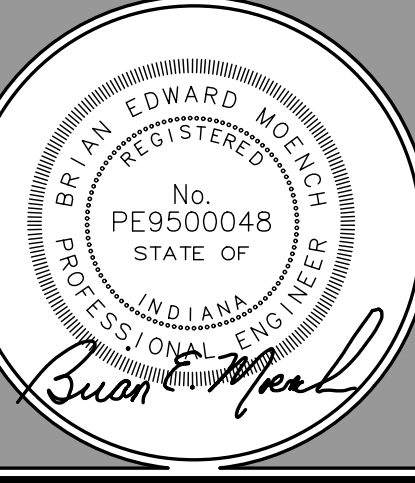
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NO.	DESCRIPTION	DATE
0	SUBMITTED FOR REVIEW	11/5/21
1	REVISED PER ISDH COMMENTS	12/3/21
2	REVISED TO ABOVE GROUND STORAGE	11/22/22
3	REVISED PER TOWN COMMENTS	9/09/24
4	REVISED PER TOWN COMMENTS	12/11/24
5	Revised Storm Outlet	9/26/25
6	REVISED PER TOWN COMMENTS	11/06/25

DRAWN BY: JBF
CHECKED BY: BEM
PROJECT NUMBER: 21346
DATE: 1/13/22
SHEET NUMBER:

C401



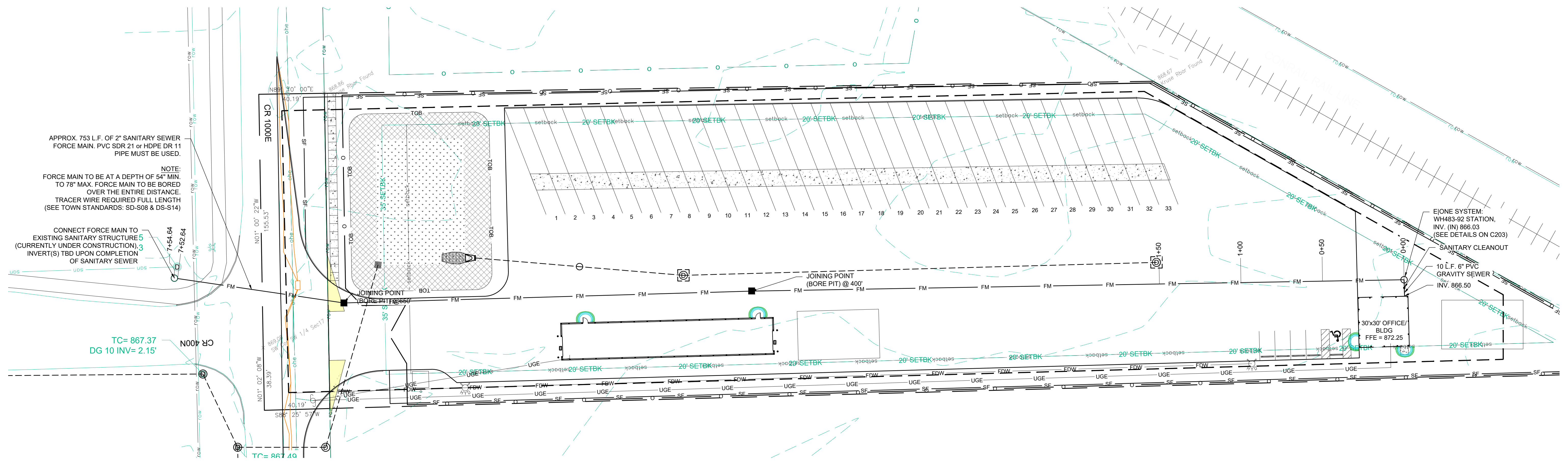


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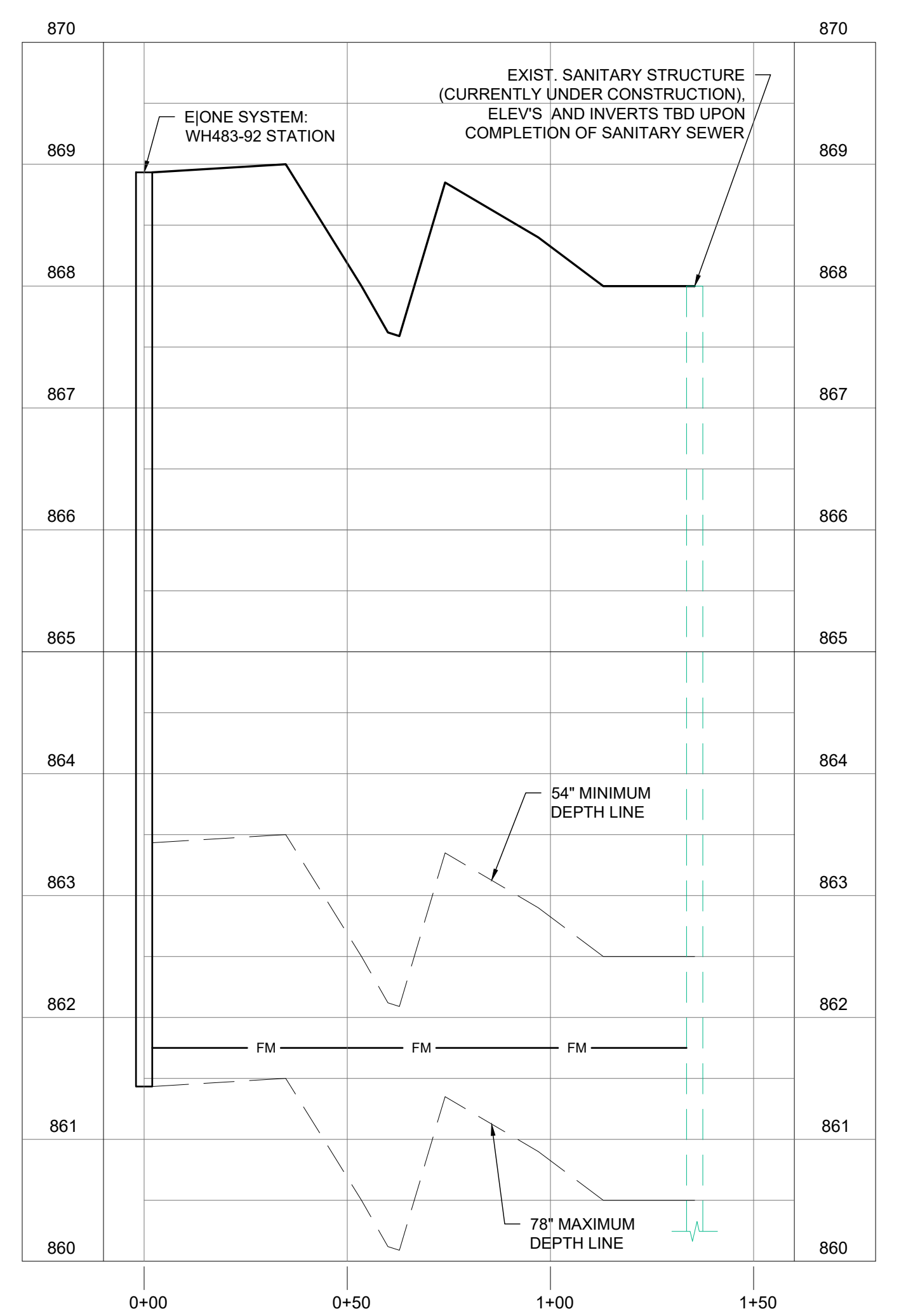
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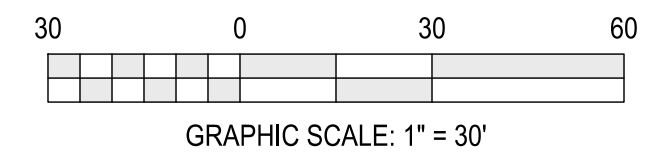
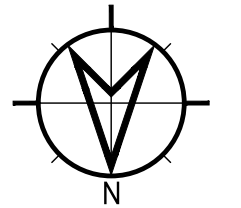
APPROX. 753 L.F. OF 2" SANITARY SEWER FORCE MAIN. PVC SDR 21 or HDPE DR 11 PIPE MUST BE USED.

NOTE:
 FORCE MAIN TO BE AT A DEPTH OF 54" MIN. TO 78" MAX. FORCE MAIN TO BE BORED OVER THE ENTIRE DISTANCE.
 TRACER WIRE REQUIRED FULL LENGTH (SEE TOWN STANDARDS: SD-S08 & DS-S14)

CONNECT FORCE MAIN TO EXISTING SANITARY STRUCTURE 5 (CURRENTLY UNDER CONSTRUCTION). 3 INVERT(S) TBD UPON COMPLETION OF SANITARY SEWER

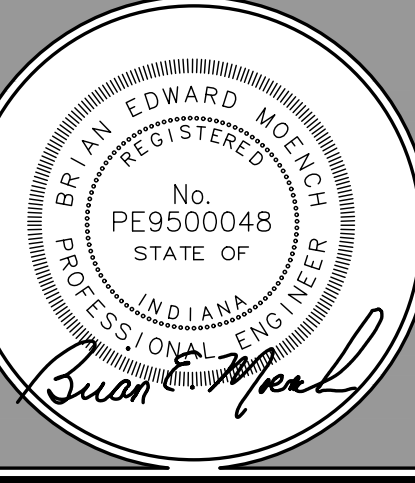


FORCE MAIN PLAN + PROFILE
 SCALE: Horz.: 1" = 30', Vert.: 1" = 10'



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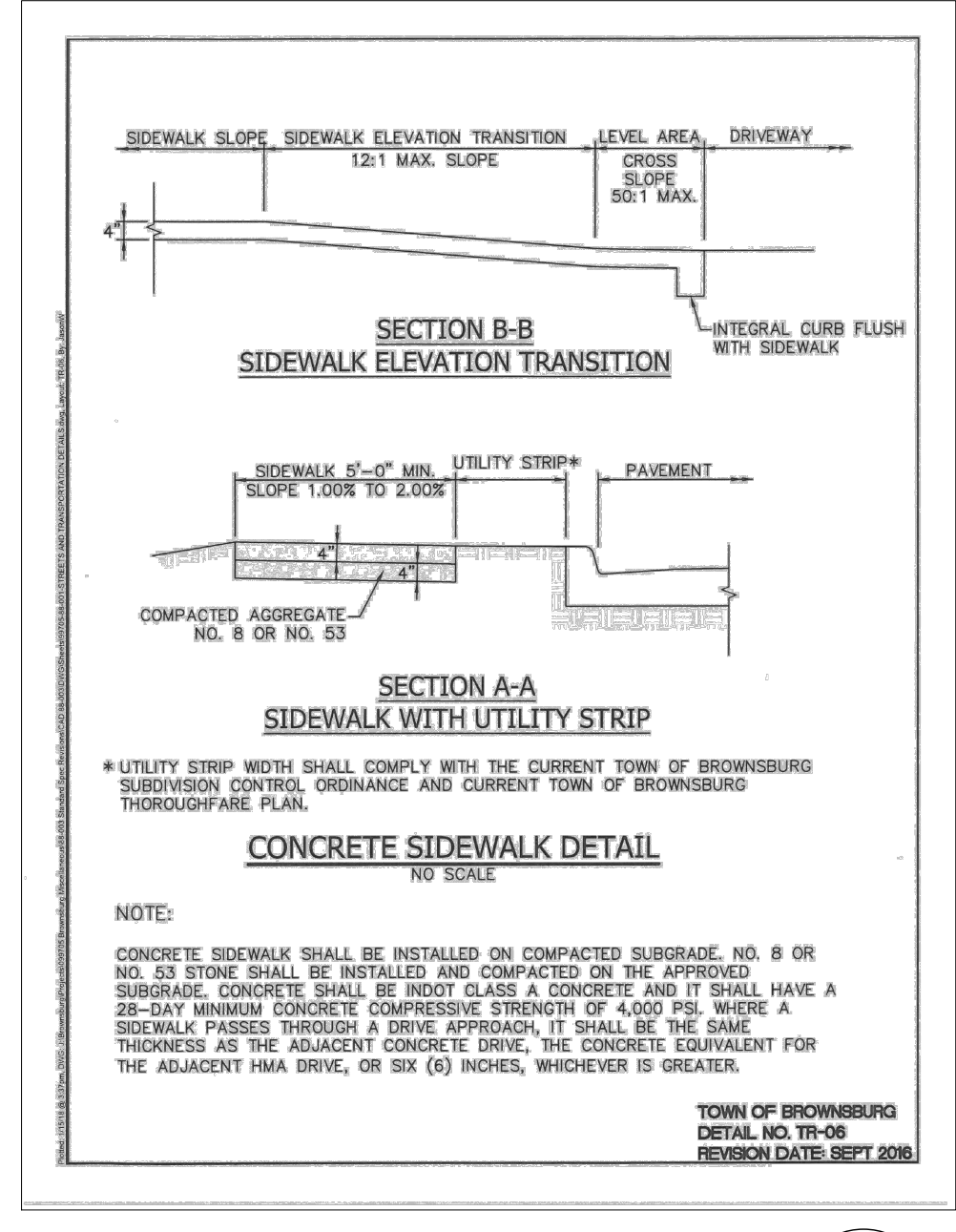
LIONS TRANS INC. (BROWNSBURG)
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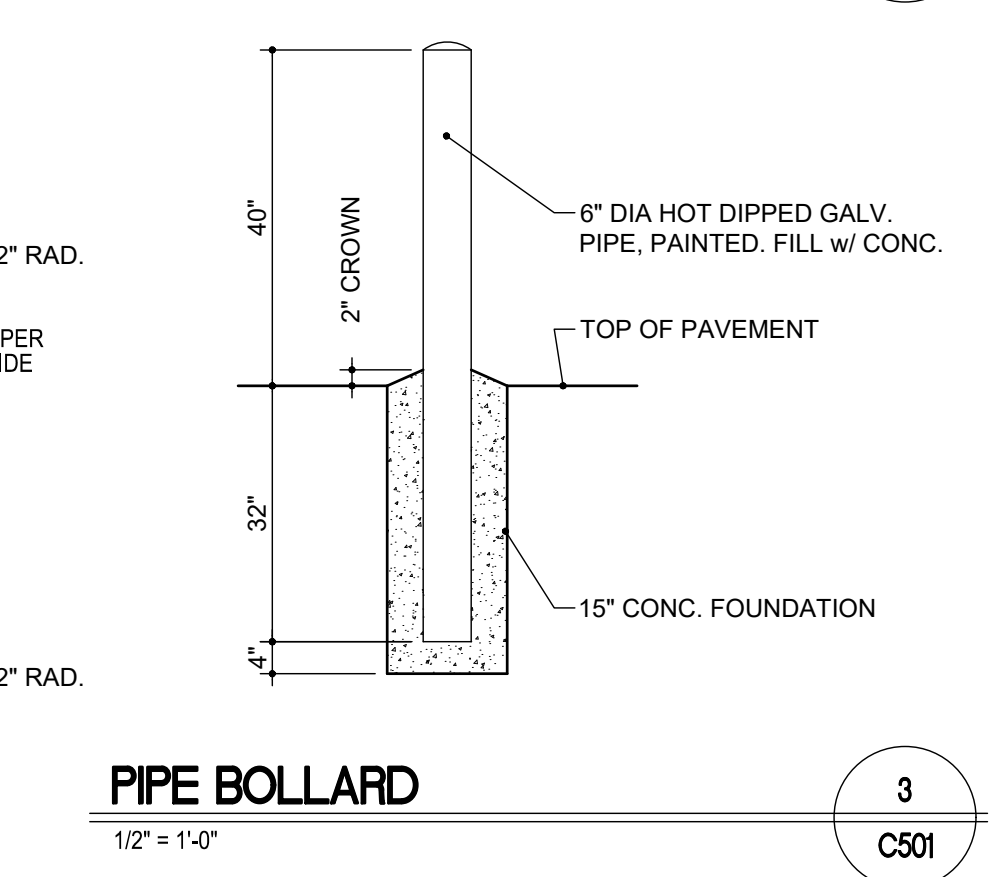
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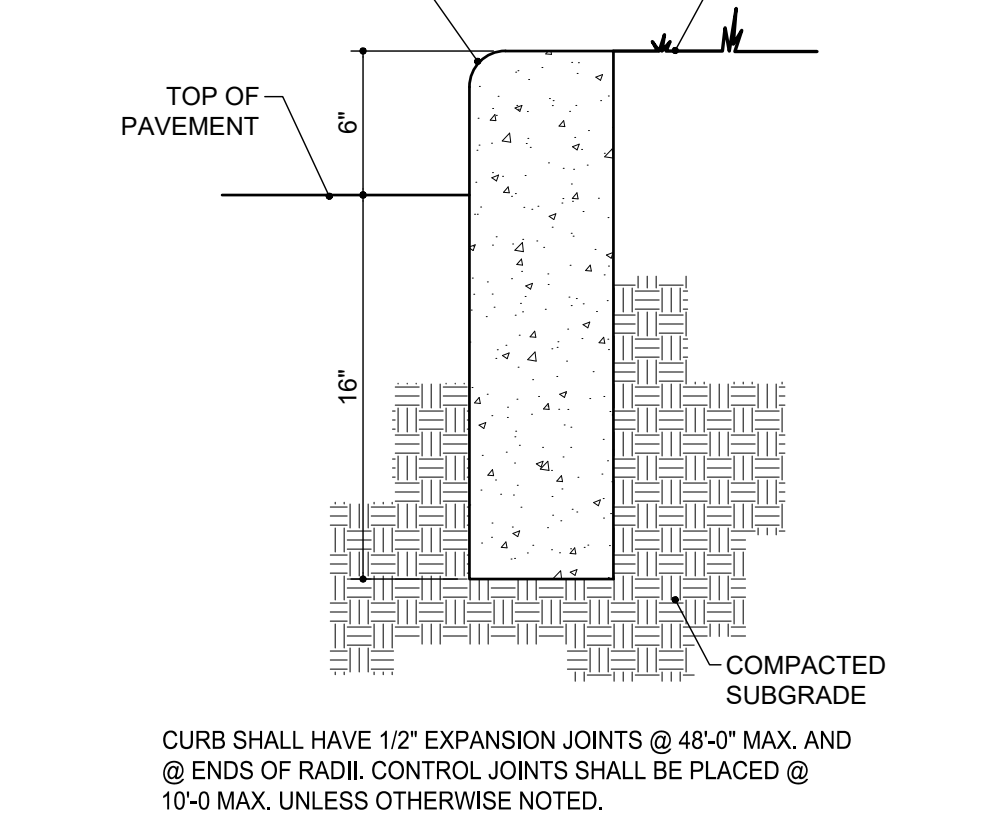
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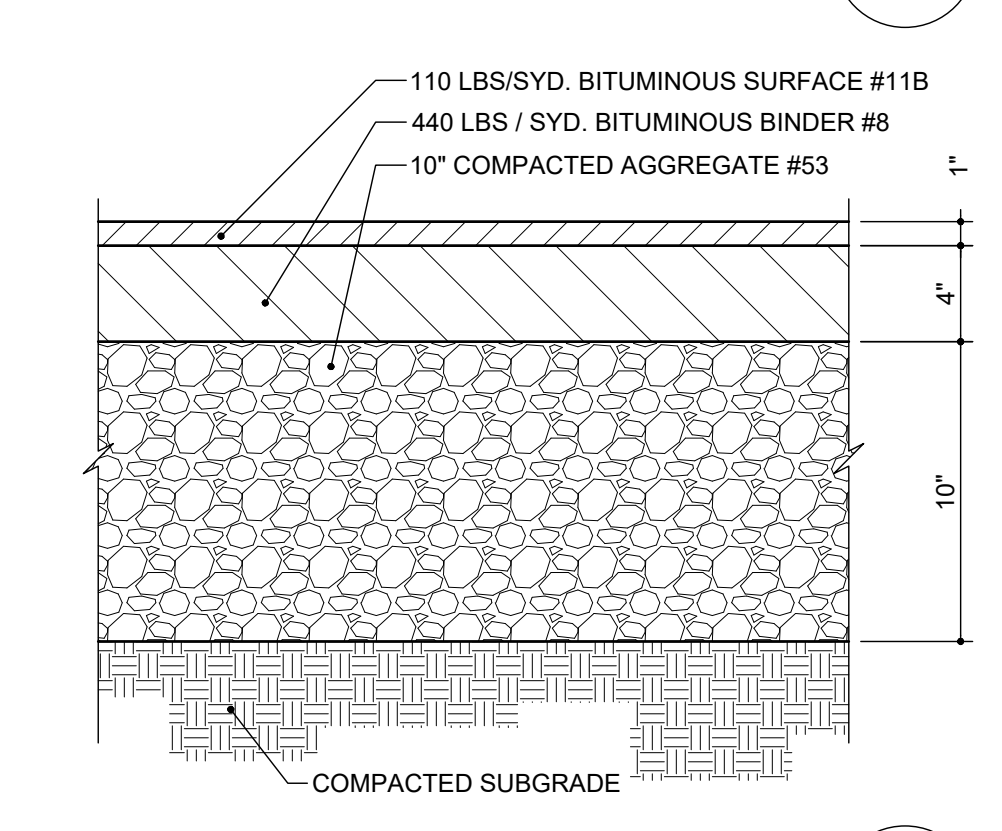
CONCRETE SIDEWALK
NOT TO SCALE



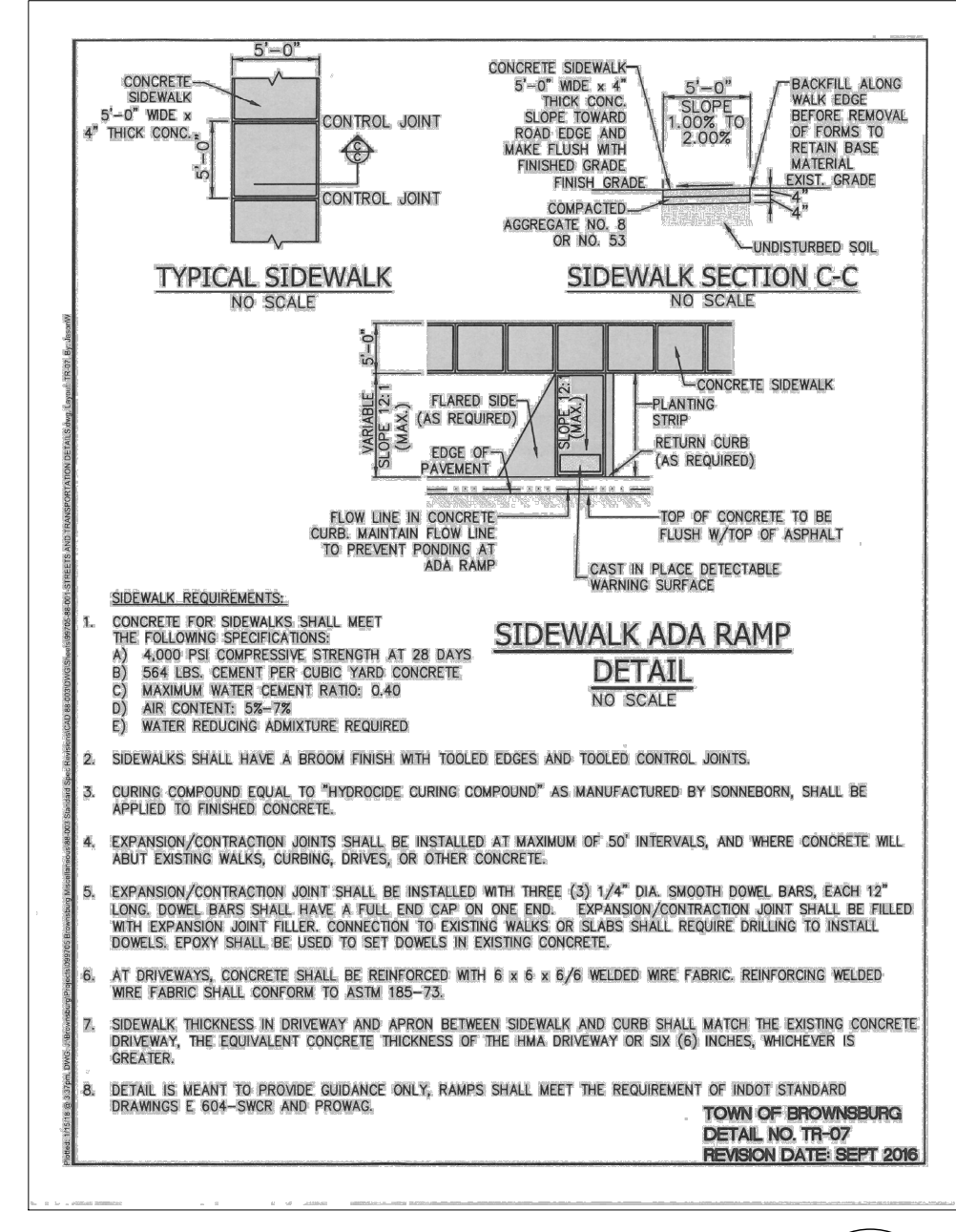
PIPE BOLLARD
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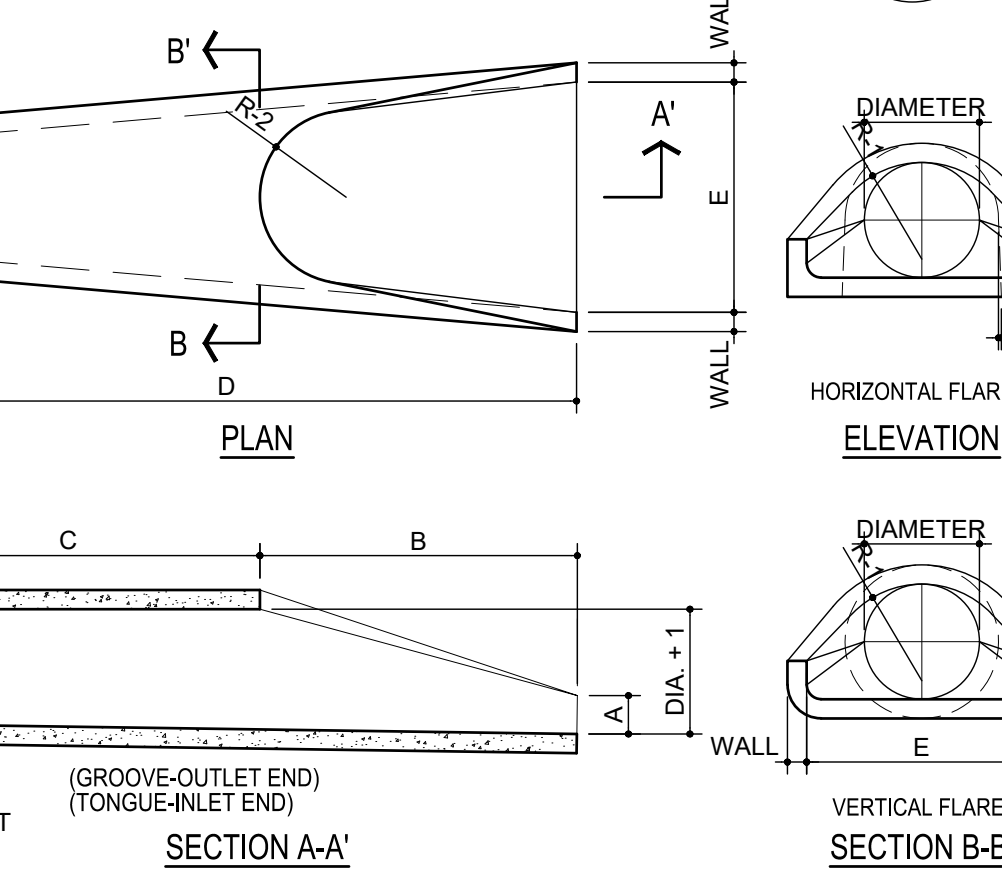
STRAIGHT CURB
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HEAVY DUTY ASPHALT
NOT TO SCALE



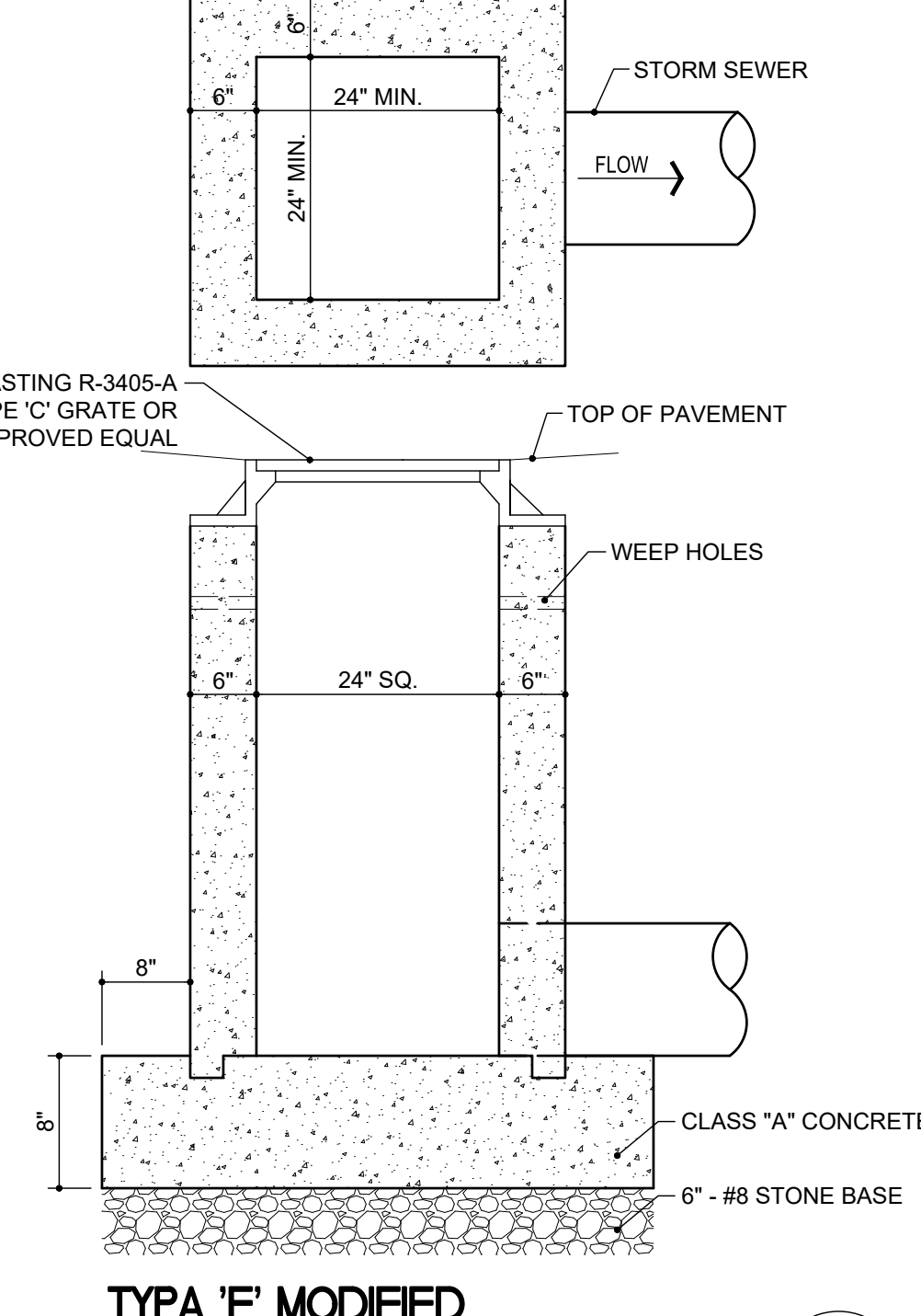
HANDICAP RAMP
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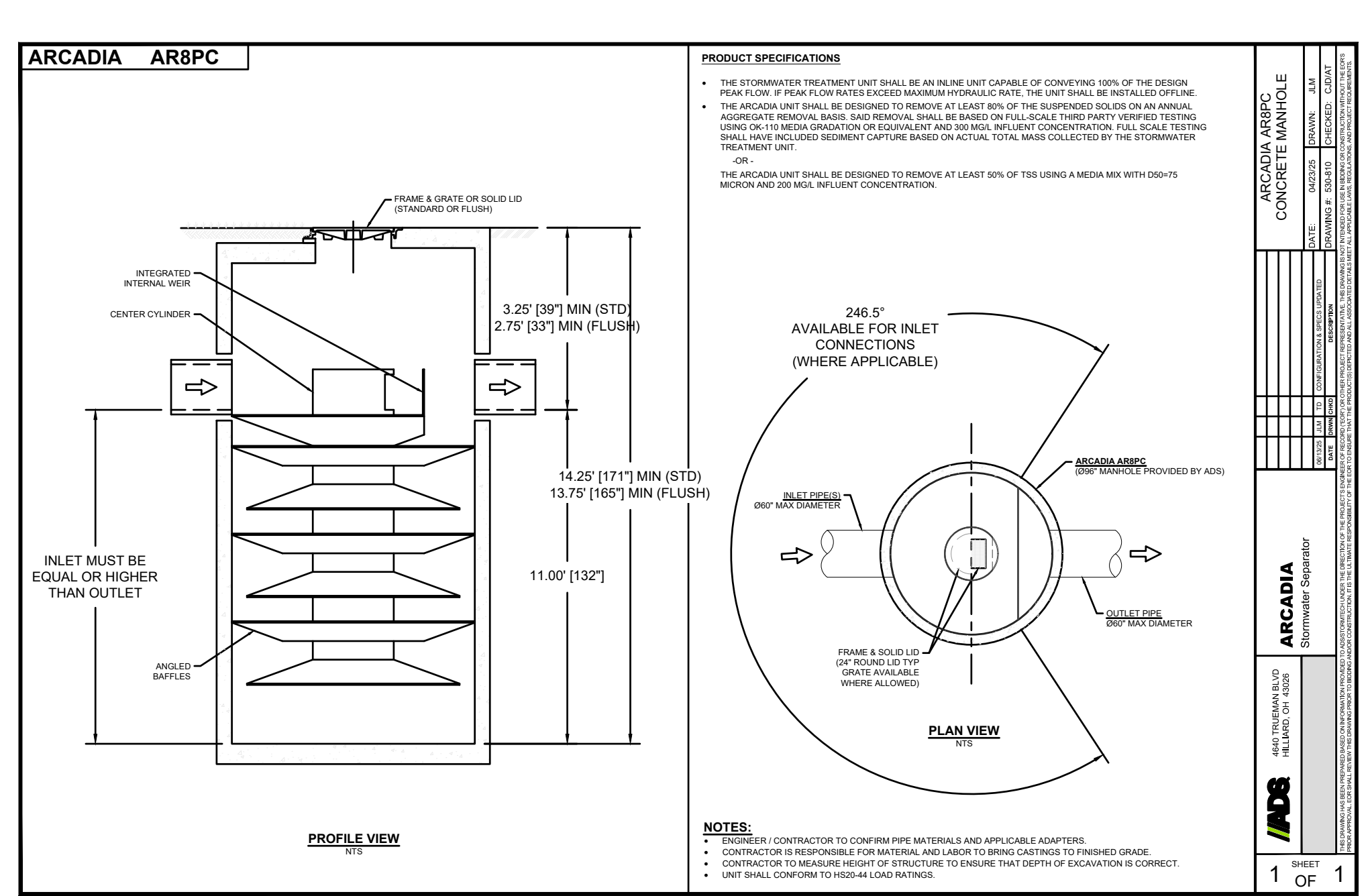
CONCRETE END SECTION
NOT TO SCALE

SIZE SCHEDULE												
DIA.	WALL	G or T	WT. SEC.	A	B	C	D	E	DIA.+1	R-1	R-2	SKIRT
12	2	1-8	533	4	24	48-1	72-1	24	13	10-1	9	3-8
15	2-4	2	740	6	27	46	73	30	16	12-8	11	3-8
18	2-8	2-8	990	9	27	46	73	36	19	15-8	12	4
21	2-8	2-4	1280	9	35	38	73	42	22	16-2	13	4
24	3	2-8	1520	9-8	43-8	30	73-8	48	25	16-0	14	4-8

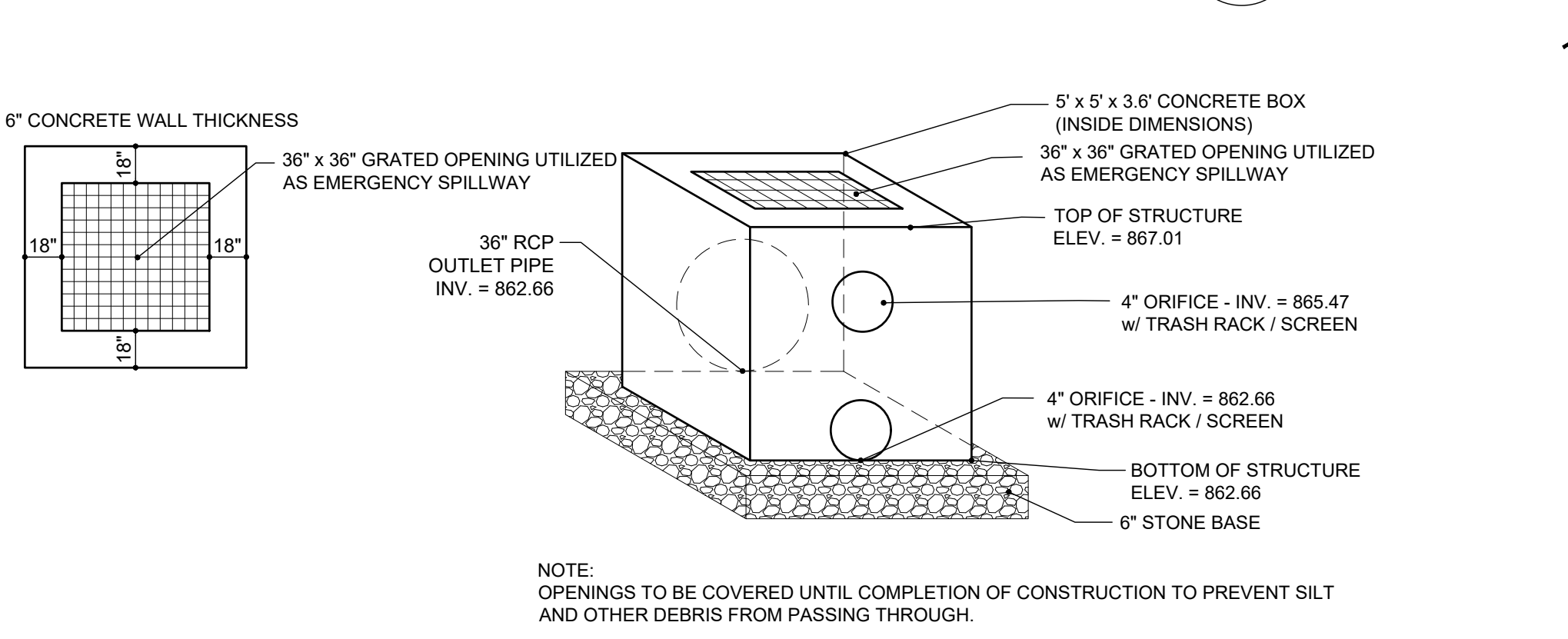
CONCRETE END SECTION
NOT TO SCALE



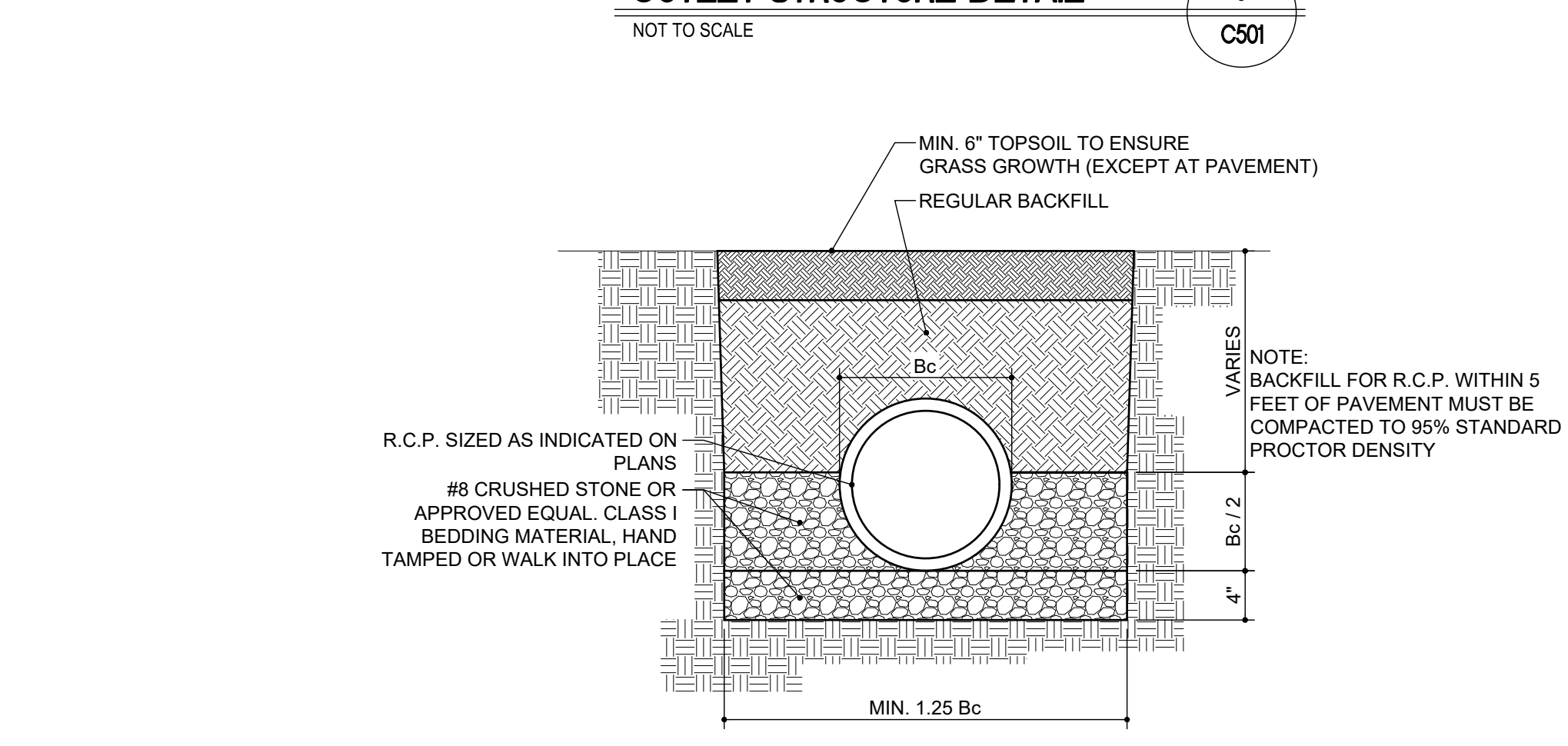
**TYPA 'E' MODIFIED
STORM CATCHBASIN**
NOT TO SCALE



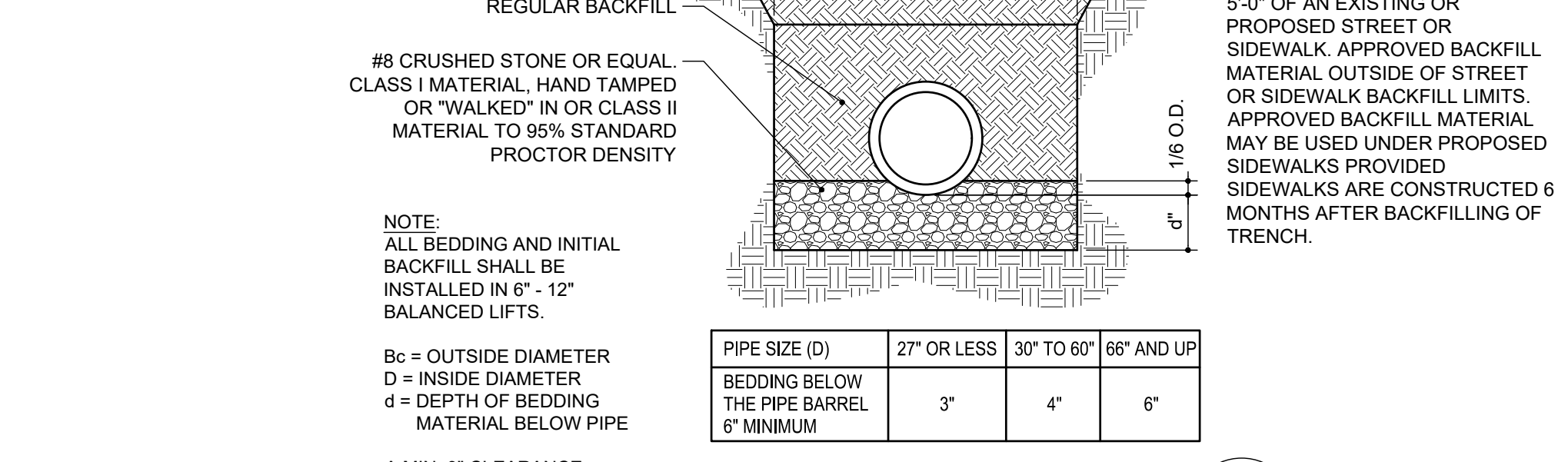
**ARCADIA AR8 HYDRODYNAMIC
SEPARATOR DETAIL**
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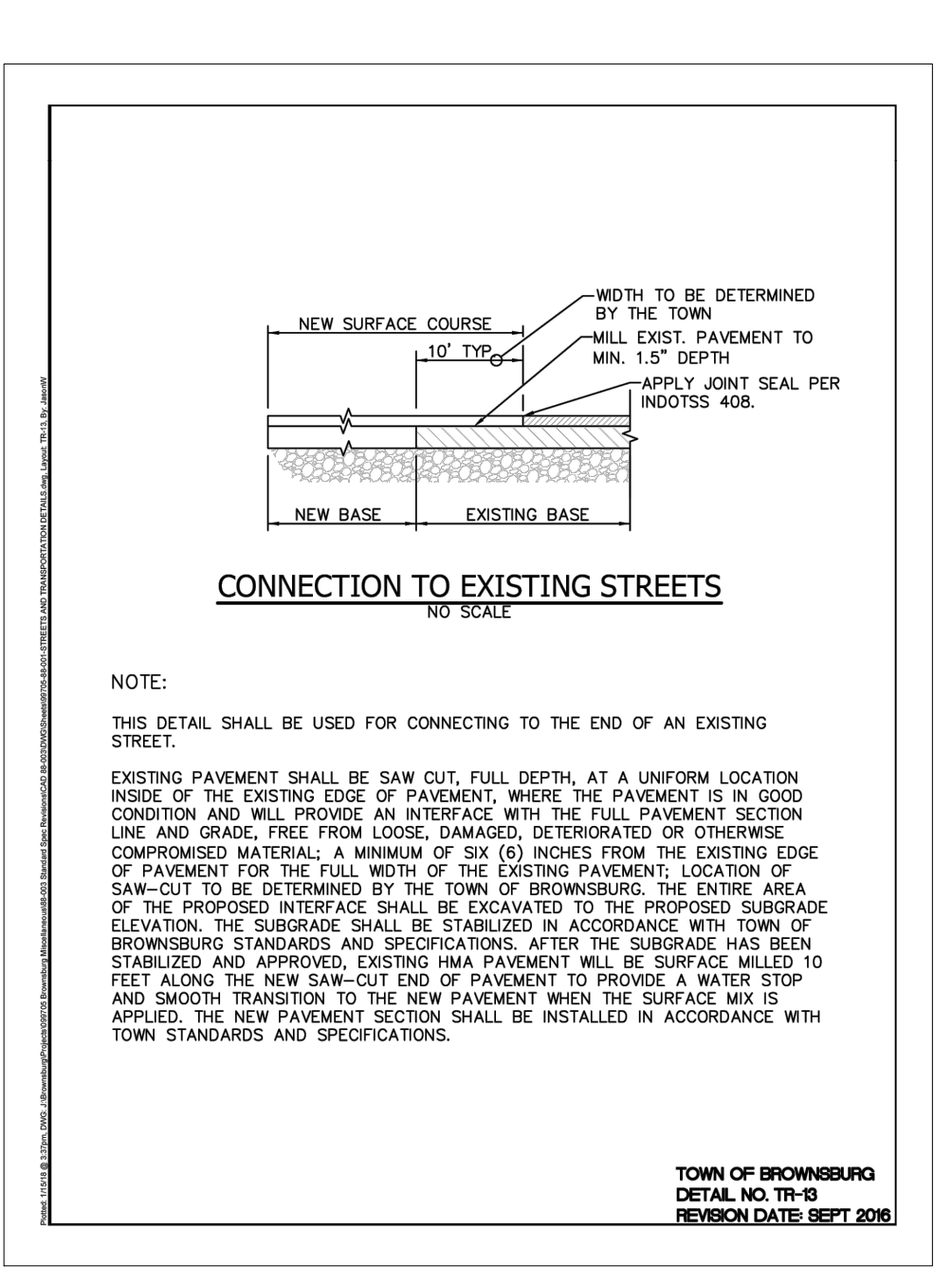
OUTLET STRUCTURE DETAIL
NOT TO SCALE



R.C.P. PIPE TRENCH DETAIL
NOT TO SCALE



HANDICAP RAMP
NOT TO SCALE



HANDICAP RAMP
NOT TO SCALE

HANDICAP RAMP
NOT TO SCALE

SECTION 02504 - ADJACENT ROADWAY IMPROVEMENTS

PART 1 - GENERAL

1.01 Roadways adjacent to proposed developments shall conform to the following requirements and standards:

A. Adjacent Roadway Improvements

- Developers shall be responsible for improvements to the existing roadway(s) that front their property. These improvements shall include, but are not limited to, the following items:
 - Construction of acceleration lanes, deceleration lanes, and passing bays for each entrance or street intersection as indicated in the Standard Details.
 - In order to construct adequate acceleration lanes, deceleration lanes, and passing bays, right-of-way shall be obtained which has a width consistent with the most current accepted Thoroughfare Plan.
 - The existing roadway along the development frontage shall be widened to match the width requirements based on the functional classification of the roadway as defined by the Thoroughfare Plan. Once widened, the entire roadway fronting the development shall be resurfaced for consistency.
- Additional improvements may be required depending on field conditions and as determined by the Town of Brownsburg.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

PART 4 - FIGURES

4.01 Associated Standard Details

Detail No.	Description
TR-01	Concrete Chalk Back Curb & Gutter
TR-02	Concrete Roof Curb & Gutter
TR-03	Driveway Curb Cut
TR-04	Curb Inlet Detail
TR-05	Concrete Center Curb
TR-06	Concrete Driveway
TR-13	Connection to Existing Streets
TR-14	Widening Detail
TR-16	Minimum Entrance Requirements

TOWN OF BROWNSBURG, INDIANA
CONSTRUCTION STANDARDS
SEPTEMBER 2016

ADJACENT ROADWAY IMPROVEMENTS
02504-1

TR-17	Roadway Improvements at New Development Entrances
RS-01	Typical Cross Sections - Primary Arterials A1 and A2
RS-02	Typical Cross Sections - Primary Arterials B1 and B2
RS-03	Typical Cross Sections - Primary Arterials C1 and C2
RS-04	Typical Cross Sections - Secondary Arterials 1 and 2
RS-05	Typical Cross Sections - Collectors 1 and 2
RS-06	Typical Cross Sections - Neighbor Collectors 1 and 2
RS-07	Typical Cross Sections - Local 1 (No Parking), Local 2 (Parking Both Sides) and Local 3 (Parking One Side)
RS-08	Typical Trail Cross Section
RS-09	Typical Cross Section - Local Street with Roadside Ditch
RS-10	Typical Cross Sections - Local Alternatives

END OF SECTION 02504

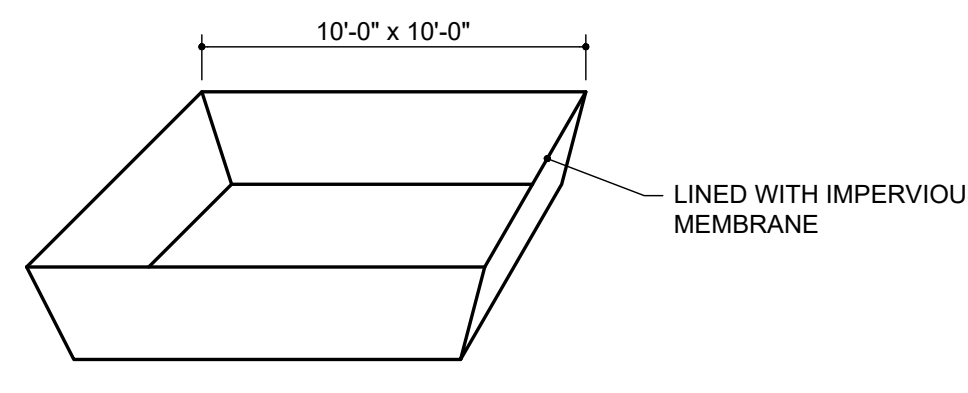
TOWN OF BROWNSBURG, INDIANA
CONSTRUCTION STANDARDS
SEPTEMBER 2016

ADJACENT ROADWAY IMPROVEMENTS
02504-2

REVISIONS:		
0	SUBMITTED FOR REVIEW	11/5/21
1	REVISED PER ISDH COMMENTS	12/3/21
2	REVISED TO ABOVE GROUND STORAGE	1/12/22
3	REVISED PER TOWN COMMENTS	9/09/24
4	REVISED PER TOWN COMMENTS	12/11/24
5	Revised Storm Outlet	9/26/25
6	REVISED PER TOWN COMMENTS	11/06/25

DRAWN BY:	JBF
CHECKED BY:	BEM
PROJECT NUMBER:	21346
DATE:	1/13/22
SHEET NUMBER:	

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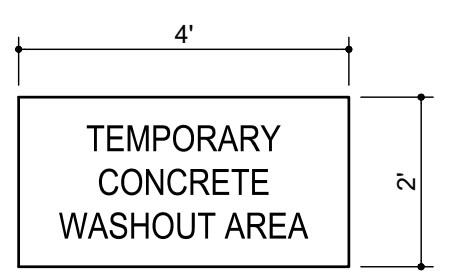


NOTE:
1. A LINED ROLLOFF DUMPSTER OR CONTAINER TO BE USED IN LIEU OF A CONSTRUCTED WASHOUT BASIN.

CONCRETE WASHOUT BASIN

NOT TO SCALE

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C502

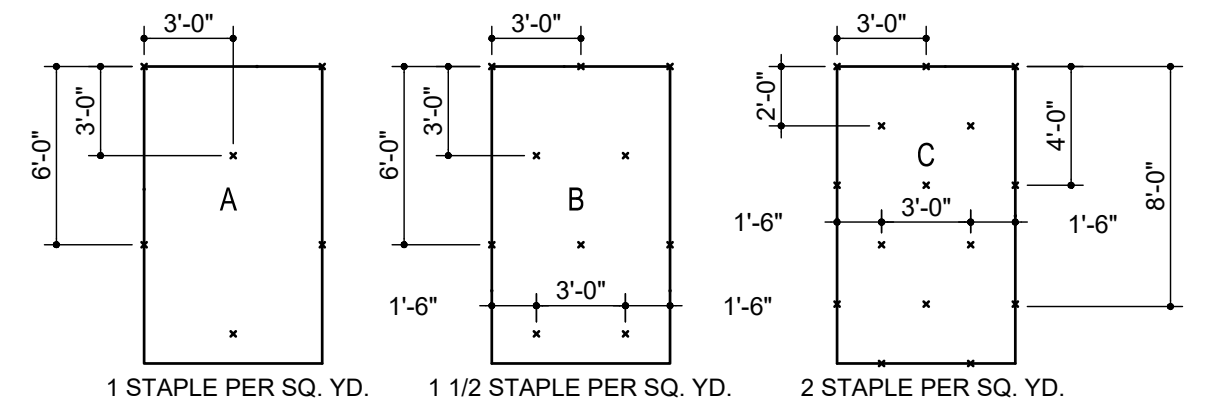


NOTES:
1. SIGN TO BE POSTED THROUGHOUT CONSTRUCTION ACTIVITY.
2. SIGN TO BE MADE OF SEMI-PERMANENT MATERIAL, I.E. WOOD.

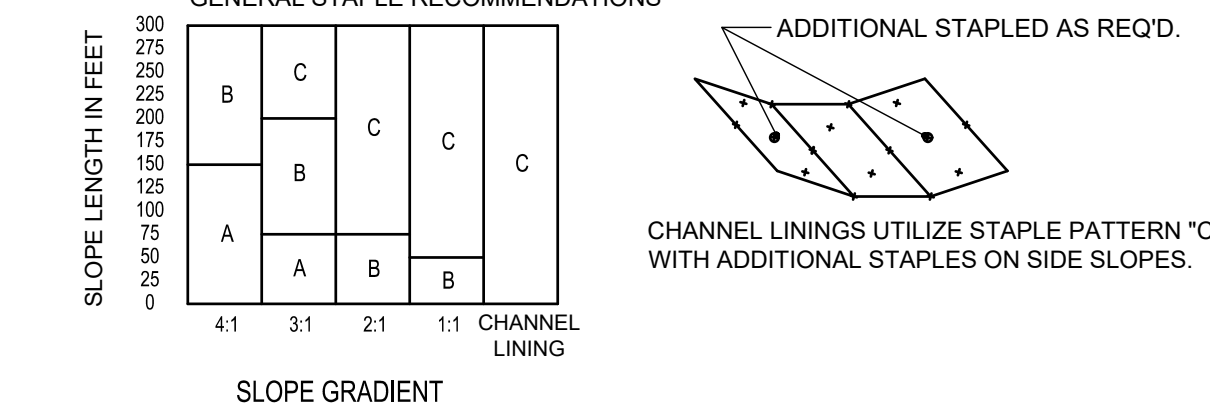
CONCRETE WASHOUT SIGN

NOT TO SCALE

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1 STAPLE PER SQ. YD. 1 1/2 STAPLE PER SQ. YD. 2 STAPLE PER SQ. YD.

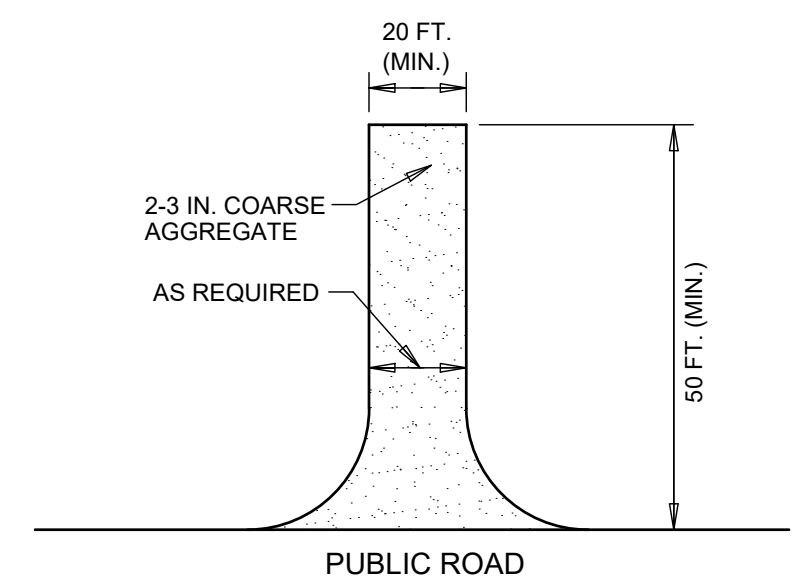


NOTES:
1. STAPLE PATTERNS APPLY TO ALL NORTH AMERICAN GREEN EROSION BLANKETS.
2. STAPLE PATTERNS MAY VARY DEPENDING UPON SOIL TYPE AND AVERAGE ANNUAL RAINFALL.
3. AT SLOPE LENGTHS GREATER THAN 300 FEET OR WHERE DRAINAGE OVER LARGE AREAS IS DIRECTED ONTO BLANKETS, STAPLE PATTERN "C" SHOULD BE UTILIZED.
4. CHANNEL LININGS REQUIRE A 2' (MIN.) OVERLAP AT LONGITUDINAL JOINTS AND SIDE SLOPES REQUIRE A 6" (MIN.) OVERLAP. WHERE OVERLAPS OCCUR, THE UPSTREAM BLANKET SHALL OVERLAP THE DOWNSTREAM.
5. NORTH AMERICAN GREEN S150BN TO BE USED FOR EROSION CONTROL BLANKETS.

EROSION CONTROL BLANKET STAPLE PATTERN

NOT TO SCALE

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C502

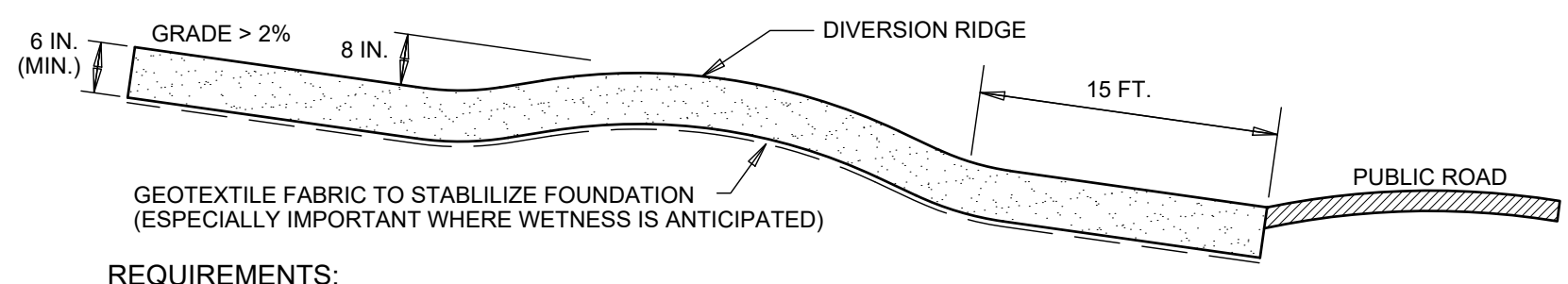


NOTE:
1. SEE SILT FENCE DETAIL FOR MATERIAL SPECIFICATIONS.
2. SILT FENCE SHALL BE PREASSEMBLED BY SUPPLIER.

SILT FENCE INLET PROTECTION DETAIL

NOT TO SCALE

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C502



REQUIREMENTS:
Material: 2-3 in. washed stone (INDOT CA No.2) over a stable foundation.
Thickness: 6 in. minimum
Width: 12 ft. minimum or full width of entrance/exit roadway, whichever is greater.
Length: 50 ft. minimum. The length can be shorter for small sites such as for an individual home.
Washing facility (optional): Level area with 3 in washed stone minimum or a commercial rack, and waste water diverted to a sediment trap or basin.
Geotextile fabric underliner: May be used under wet conditions or for soils within a high seasonal water table to provide greater bearing strength.

INSTALLATION:

1. Avoid locating on steep slopes or at curves in public roads.
2. Remove all vegetation and other objectionable material from the foundation area, and grade and crown for positive drainage.
3. If slope towards the road exceeds 2%, construct a 6-8 in.-high water bar (ridge) with 3:1 side slopes across the foundation area about 15 ft. from the entrance to divert runoff away from the road.
4. Install pipe under the pad if needed to maintain proper public road drainage.
5. If wet conditions are anticipated, place geotextile fabric on the graded foundation to improve stability.
6. Place stone to dimensions and grade shown in the erosion control plan, leaving the surface smooth and sloped for drainage.
7. Divert all surface runoff and drainage from the stone pad to a sediment trap or basin.

MAINTENANCE:

- * Inspect entrance drive and sediment disposal area weekly and after storm events or heavy use.
- * Reshape pad as needed for drainage and runoff control.
- * Topdress with clean stone as needed.
- * Immediately remove mud and sediment tracked or washed onto public roads by brushing or sweeping. Flushing should only be used if the water is conveyed into a sediment trap or basin.
- * Repair any broken road pavement immediately.

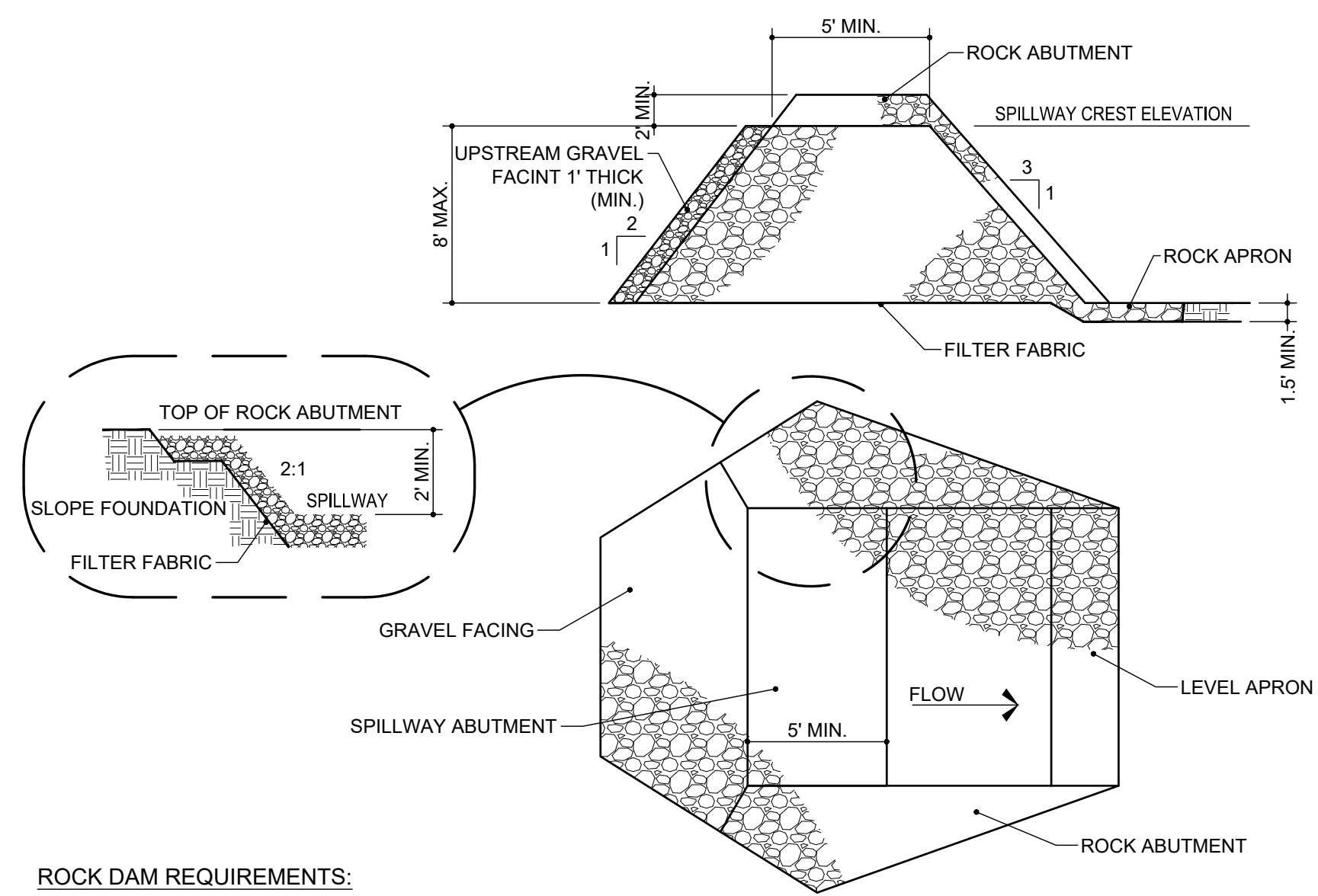
COMMON CONCERNS:

- Inadequate runoff control--results in sediment washing onto road.
- Stone too small, pad too thin, or geotextile fabric absent--results in ruts and a muddy condition as stone is pressed into the soil: add more stone. Pad too short for heavy construction traffic--extend the pad beyond the 50-ft. length as needed.
- Pad not flared sufficiently at road entrance--results in mud being tracked onto the road and possible damage to the road edge: widen stone entrance and repair road damage.
- Unstable foundation--use geotextile fabric under th pad and/or improve foundation drainage.

TEMPORARY CONSTRUCTION ENTRANCE

NOT TO SCALE

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C502



ROCK DAM REQUIREMENTS:

1. CONTRIBUTING DRAINAGE AREA: 50 ACRES MAXIMUM
2. DESIGN LIFE: LIMITED TO 3 YRS.
3. SEDIMENT STORAGE: 1,800 CU.FT./ACRE DISTURBED (MINIMUM) MEASURED 1 FT. BELOW SPILLWAY CREST.
4. BASIN SHAPE: MINIMUM 2:1 LENGTH-TO-WIDTH RATIO.
5. BASIN AREA: VARIABLE; THE LARGER THE SURFACE AREA THE GREATER THE TRAPPING EFFICIENCY.
6. DAM CREST HEIGHT: LIMITED TO 8 FT.
7. SPILLWAY CAPACITY: PEAK RUNOFF FROM A 10-YR. FREQUENCY, 24-HR. DURATION STORM EVENT, A MAXIMUM FLOW DEPTH OF 1 FT. AND MINIMUM FREEBOARD OF 1 FT. (ENTIRE LENGTH OF DAM BETWEEN ROCK ABUTMENTS MAY SERVE AS SPILLWAY.)
8. DAM DIMENSIONS: TOP WIDTH, 5 FT. MINIMUM; SIDE SLOPES, 2:1 OR FLATTER UPSTREAM, 3:1 OR FLATTER DOWNSTREAM.
9. EARTH ABUTMENTS: SMOOTH, STABLE, 2:1 OR FLATTER SLOPES.
10. ROCK ABUTMENTS (TO PROTECT EARTH ABUTMENTS): EXTENDED ALONG DOWNSTREAM FACE TO TOE OF DAM AND AT LEAST 1 FT. HIGHER THAN SPILLWAY FACE AT ALL POINTS, 2 FT. ABOVE SPILLWAY CREST, AND 1 FT. THICK, WITH 2:1 OR FLATTER SIDE SLOPES.
11. OUTLET PROTECTION: ROCK APRON, 1-1/2 FT. THICK (MINIMUM), ZERO GRADE, WITH LENGTH EQUAL TO HEIGHT OF DAM OR EXTENDED TO STABLE GRADE, WHICHEVER IS GREATER.
12. ROCK MATERIAL: INDOT REVETMENT RIPRAP.
13. PROTECTION FROM PIPING: GEOTEXTILE FABRIC FOR SEPARATION AND FILTRATION COVERING ENTIRE FOUNDATION, INCLUDING EARTH ABUTMENTS AND APRON.
14. BASIN DE-WATERING: THROUGH A 1 FT. THICK LAYER OF INDOT CA NO. 5 STONE ON UPSTREAM FACE OF THE DAM.

INSTALLATION:

1. DIVERT RUNOFF FROM UNDISTURBED AREAS AWAY FROM THE ROCK DAM AND BASIN AREA.
2. EXCAVATE THE FOUNDATION FOR THE APRON, USING IT AS A TEMPORARY SEDIMENT BASIN DURING CONSTRUCTION OF THE DAM.
3. CLEAR AND GRUB THE AREA UNDER THE DAM, REMOVING AND PROPERLY DISPOSING OF ALL ROOT MAT, BRUSH, AND OTHER DEBRIS.
4. GRADE THE EARTH ABUTMENTS NO STEEPER THAN 2:1.

DAM AND BASIN CONSTRUCTION:

1. EXCAVATE A CUTOFF TRENCH AT THE CENTER LINE OF THE DAM, EXTENDING ALL THE WAY UP THE EARTH ABUTMENTS, AND BACKFILL WITH COMPACTED EARTH FILL.
2. SMOOTH THE DAM FOUNDATION.
3. COVER THE ENTIRE FOUNDATION, INCLUDING BOTH EARTH ABUTMENTS, WITH GEOTEXTILE FABRIC, MAKING SURE THE UPSTREAM STRIPS OVERLAP THE DOWNSTREAM STRIPS AT LEAST 1 FT.
4. CONSTRUCT THE DAM TO PLANNED DIMENSIONS.
5. ONCE THE DAM IS IN PLACE, CLEAR THE SEDIMENT BASIN AREA, PROPERLY DISPOSING OF THE CLEARED MATERIAL.
6. SET A MARKER STAKE TO INDICATE THE CLEANOUT ELEVATION (I.E., POINT AT WHICH THE BASIN IS 50% FULL OF SEDIMENT).
7. DIVERT CONSTRUCTION SITE RUNOFF FLOW INTO THE UPPER END OF THE BASIN USING TEMPORARY DIVERSIONS.
8. STABILIZE ALL DISTURBED AREAS EXCEPT THE LOWER HALF OF THE BASIN.

SAFETY PRECAUTIONS:

1. BECAUSE SEDIMENT BASINS THAT IMPOUND WATER ARE HAZARDOUS, (A) BE SURE SIDE SLOPES ARE 2:1 OR FLATTER, (B) FENCE WITH WARNING SIGNS IF TRESPASSING IS LIKELY, (C) DE-WATER THE BASIN BETWEEN STORM EVENTS, AND (D) FOLLOW ALL STATE AND LOCAL IMPOUNDMENT SITE REQUIREMENTS.

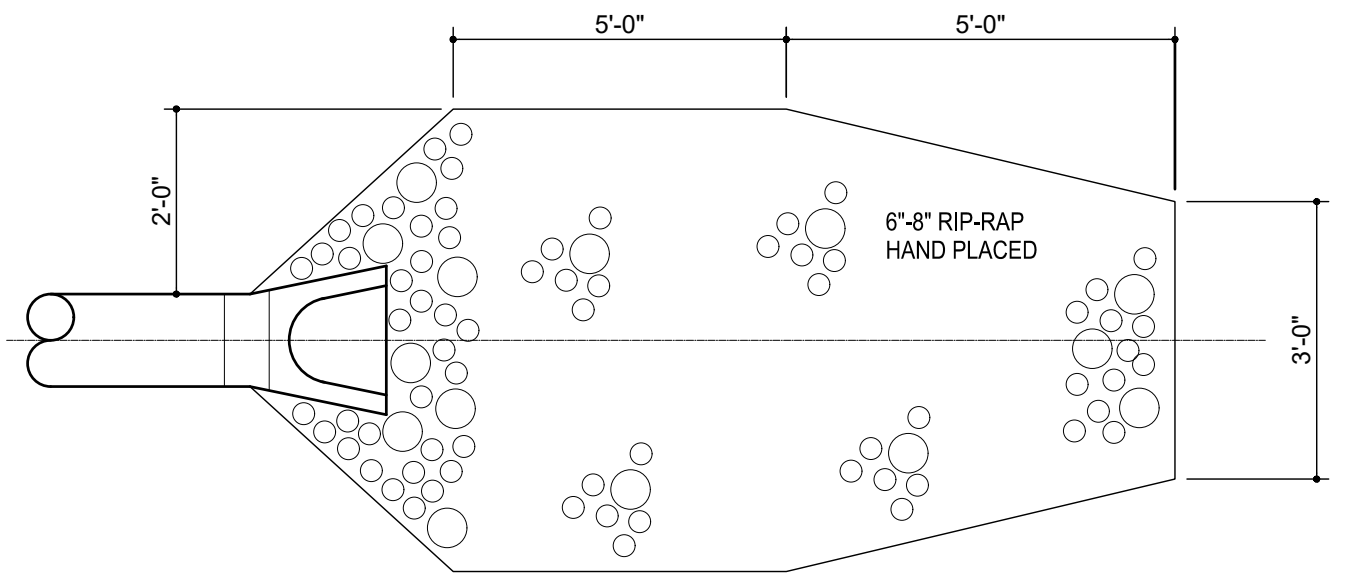
MAINTENANCE:

1. INSPECT THE ROCK DAM AND BASIN AFTER EACH STORM EVENT.
 2. REMOVE SEDIMENT WHEN IT ACCUMULATES TO HALF THE DESIGN VOLUME (MARKED BY A STAKE).
 3. CHECK THE DAM AND ABUTMENTS FOR EROSION, PIPING, OR ROCK DISPLACEMENT, AND REPAIR IMMEDIATELY.
 4. IF THE BASIN DOES NOT DRAIN BETWEEN STORMS, REPLACE THE STONE ON THE UPSTREAM FACE OF THE DAM.
 5. IF THE BASIN DRAINS TOO RAPIDLY FOLLOWING A STORM (I.E., LESS THAN 6 HRS.), ADD INDOT CA NO. 5 GRAVEL ON THE UPSTREAM FACE OF THE DAM.
 6. ONCE THE CONTRIBUTING DRAINAGE AREA HAS BEEN PERMANENTLY STABILIZED, (A) REMOVE WATER AND SEDIMENT FROM THE BASIN; (B) REMOVE THE DAM, DISPOSING OF THE ROCK IN DESIGNATED DISPOSAL AREAS; (C) SMOOTH THE SITE TO BLEND WITH THE SURROUNDING AREA; AND (D) STABILIZE.
- COMMON CONCERNS:
FAILURE FROM PIPING ALONG ABUTMENTS-BECAUSE THE FILTER MATERIAL WAS NOT PROPERLY INSTALLED OR THE EARTH ABUTMENTS ARE TOO STEEP. STONE DISPLACEMENT FROM FACE OF DAM-BECAUSE STONE SIZE IS TOO SMALL OR THE FACE IS TOO STEEP. EROSION BELOW DAM BECAUSE THE APRON WAS NOT EXTENDED TO STABLE GRADE. EROSION OF ABUTMENTS DURING SPILLWAY FLOW-BECAUSE THE ROCK ABUTMENT IS NOT HIGH ENOUGH. SEDIMENT CARRIED THROUGH SPILLWAY-BECAUSE THE DRAINAGE AREA IS TOO LARGE; TO SOLVE, DIVERT RUNOFF FROM THE UNDISTURBED AREA AWAY FROM THE BASIN. SEDIMENT LOSS THROUGH DAM-BECAUSE THE LAYER OF AGGREGATE ON THE UPSTREAM FACE IS NOT THICK ENOUGH OR IS TOO COARSE TO RESTRICT FLOW THROUGH THE DAM.

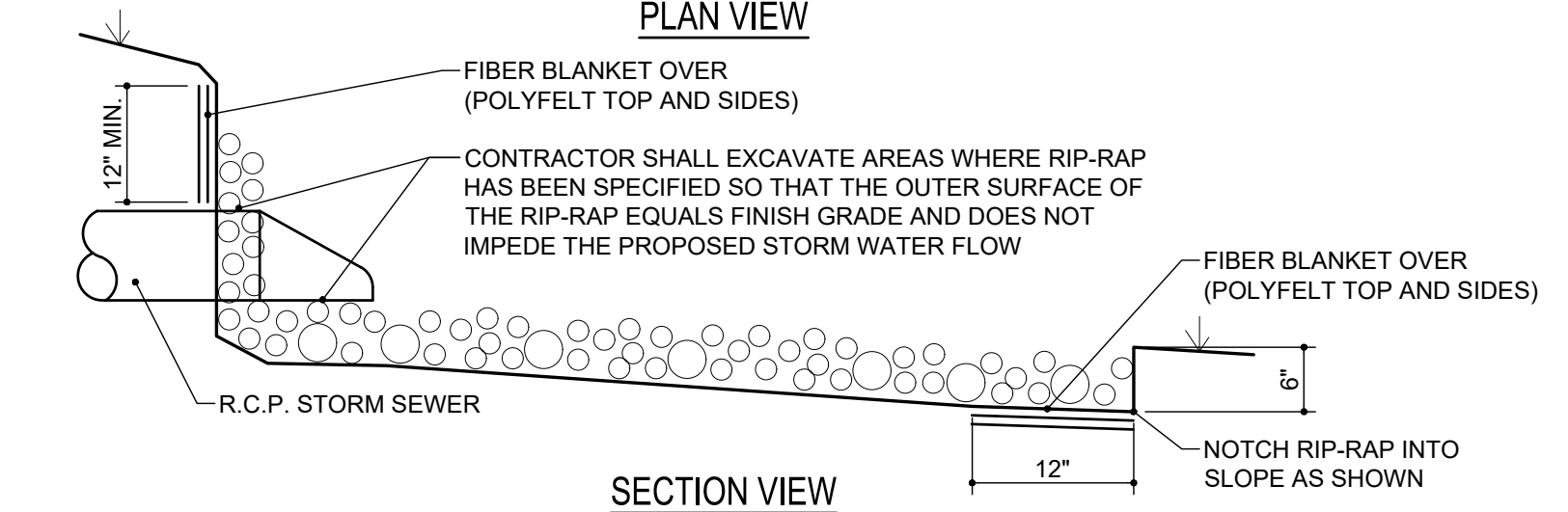
ROCK DAM

NOT TO SCALE

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PLAN VIEW



SECTION VIEW

RIP-RAP REQUIREMENTS:

- CONTRIBUTING DRAINAGE AREA: 100 ACRES MAXIMUM.
CAPACITY: PEAK RUNOFF FROM 10-YR. FREQUENCY, 24-HR. DURATION STORM EVENT.
APRON: DESIGN DEPENDS ON CHANNEL DEFINITION, BUT IS LONG ENOUGH TO DISSIPATE RUNOFF ENERGY. SET ON ZERO GRADE, STRAIGHT AND ALIGNED WITH THE RECEIVING STREAM. (IF SITE CONDITIONS REQUIRE A CURVE, SET IT NEAR THE UPSTREAM END.)
FOUNDATION: GEOTEXTILE FABRIC FOR STABILIZATION AND FILTRATION OR WELL-GRADED GRAVEL FILTER LAYER AT LEAST 6 IN. THICK.
MATERIAL: HARD, ANGULAR, AND HIGHLY WEATHER-RESISTANT RIPRAP STONE OF 6 - 8 INCHES IN SIZE.
THICKNESS: 12 IN. MINIMUM OR TWO TIMES THE D 50 STONE DIAMETER,WHICHEVER IS GREATER.

INSTALLATION:

1. EXCAVATE THE APRON AREA SUBGRADE BELOW DESIGN ELEVATION TO ALLOW FOR THICKNESS OF THE FILTER (OR GRAVEL LAYER) AND THE RIPRAP. (THIS OVER-EXCAVATION GREATLY INCREASES THE AMOUNT OF SPOIL.)
2. COMPACT ANY FILL USED IN THE SUBGRADE TO THE DENSITY OF THE SURROUNDING UNDISTURBED MATERIAL, AND SMOOTH ENOUGH TO PROTECT FABRIC FROM TEARING.
3. PLACE THE GEOTEXTILE FABRIC (OR GRAVEL LAYER) ON THE COMPACTED AND SMOOTHED FOUNDATION. IF MORE THAN ONE FABRIC PIECE IS NEEDED, THE UPSTREAM PIECE SHOULD OVERLAP THE DOWNSTREAM PIECE BY AT LEAST 1 FT.
4. INSTALL THE RIPRAP TO THE LINES AND ELEVATIONS SHOWN IN THE DESIGN. IF THE CHANNEL IS POORLY DEFINED, THE FINAL CROSS-SECTION SHOULD BE LEVEL OR SLIGHTLY DEPRESSED IN THE MIDDLE; IF WELL DEFINED, THE FILTER (OR GROUND LAYER) AND RIPRAP SHOULD EXTEND TO THE TOP OF THE BANK.
5. IF THE GEOTEXTILE FABRIC TEARS WHEN PLACING TH RIPRAP, REPAIR IMMEDIATELY BY LAYING AND STAPLING A PIECE OF FABRIC OVER THE DAMAGE AREA, OVERLAPPING THE UNDAMAGED AREAS BY AT LEAST 12 INCHES.
6. MAKE SURE THE TOP OF THE RIPRAP APRON IS LEVEL WITH OR SLIGHTLY BELOW THE RECEIVING STREAM. (RIPRAP SHOULD NOT RESTRICT THE CHANNEL OR PRODUCE AN OVERFALL.)
7. BLEND THE RIPRAP SMOOTHLY TO THE SURROUNDING GRADE.
8. STABILIZE ALL DISTURBED AREAS IMMEDIATELY FOLLOWING INSTALLATION.

MAINTENANCE:

- * INSPECT ROCK CHUTES AFTER STORM EVENTS FOR STONE DISPLACEMENT AND FOR EROSION AT THE SIDES AND ENDS OF THE APRON.
- * MAKE NEEDED REPAIRS IMMEDIATELY; USE APPROPRIATE SIZE STONE; AND DO NOT PLACE THEM ABOVE FINISHED GRADE.

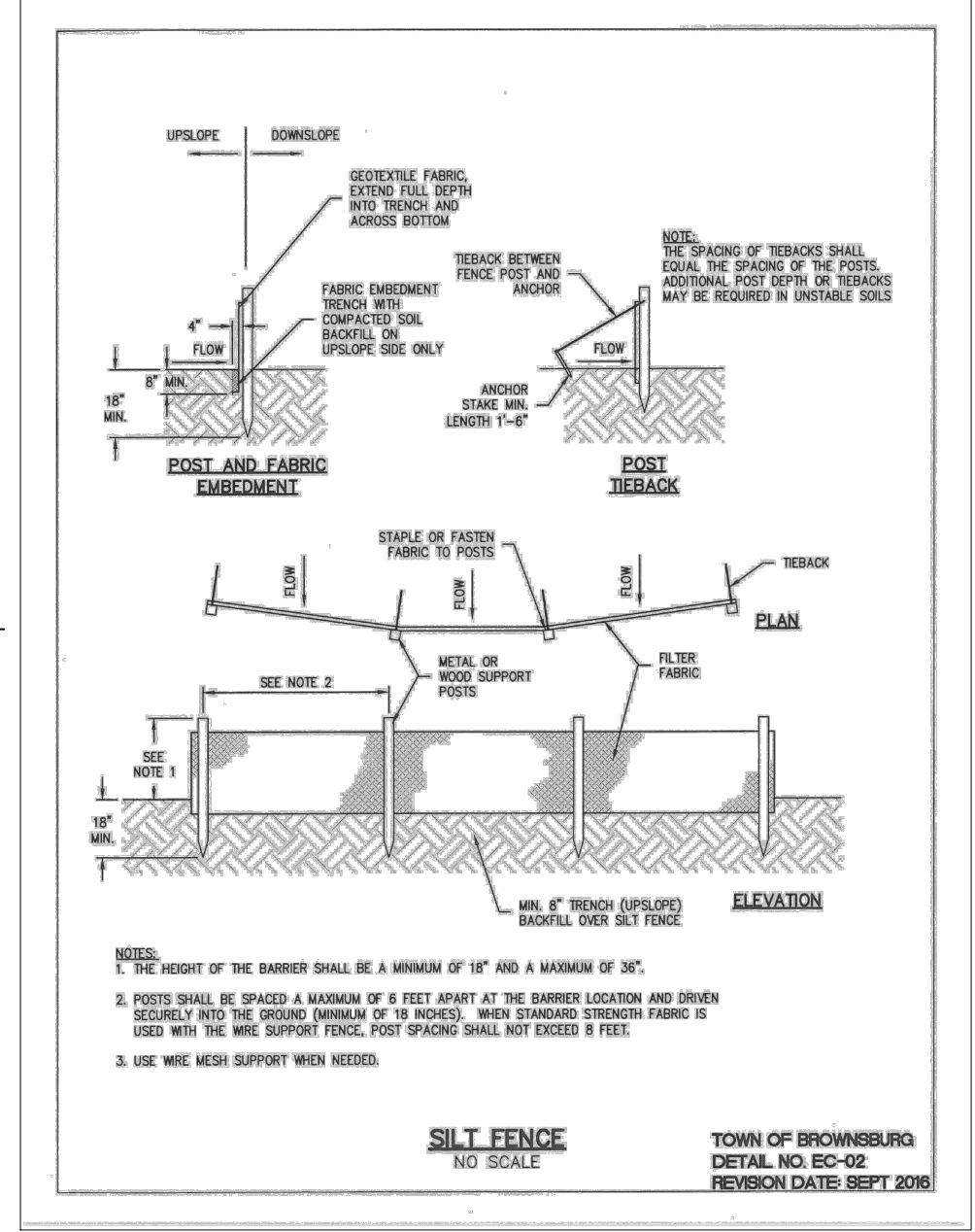
COMMON CONCERNS:

FOUNDATION NOT EXCAVATED DEEP ENOUGH OR WIDE ENOUGH--RIPRAP RESTRICTS THE FLOW CROSS SECTION, RESULTING IN EROSION AROUND THE APRON AND SCOUR HOLES AT THE OUTLET.
RIPRAP APRON ON ZERO GRADE--

RIP-RAP DETAIL

NOT TO SCALE

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C502



SILT FENCE DETAIL

NOT TO SCALE

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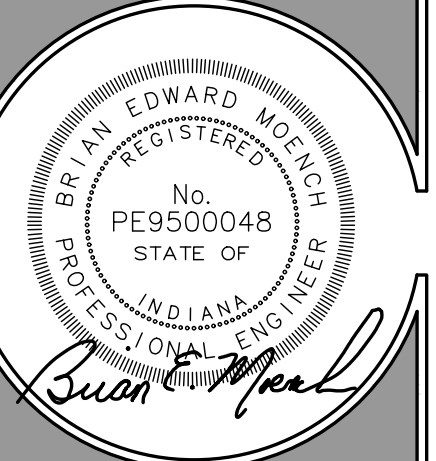


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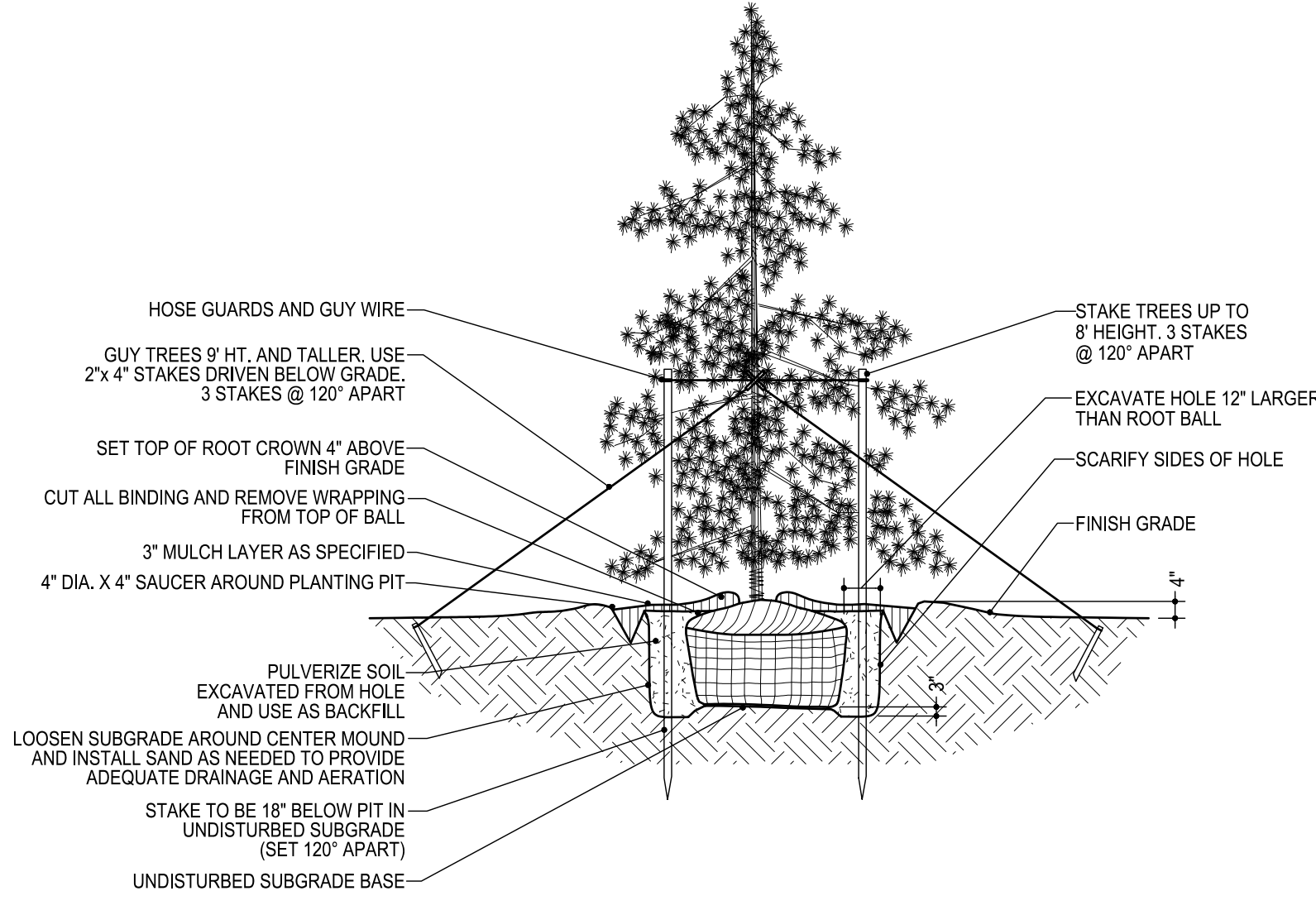
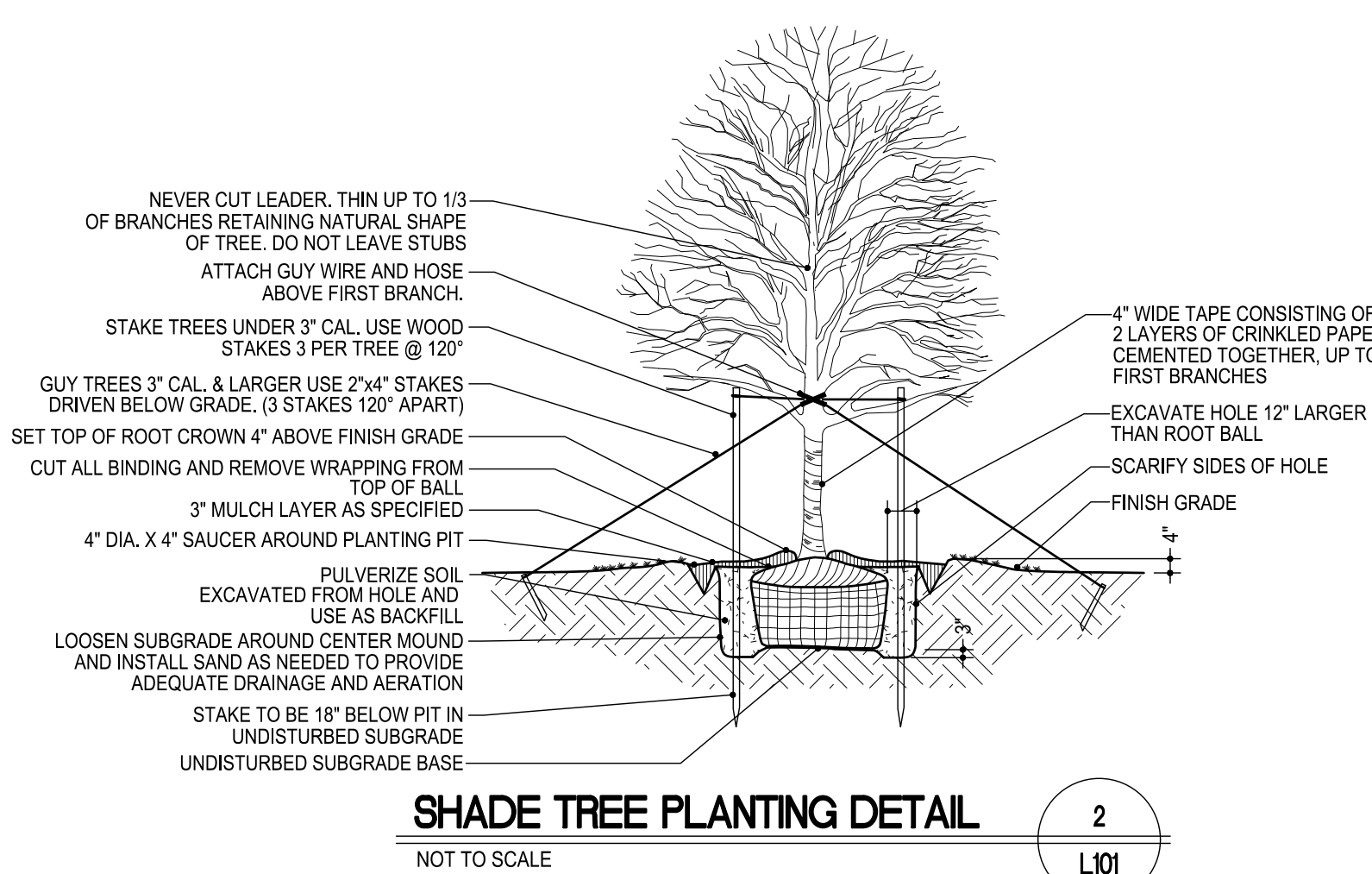
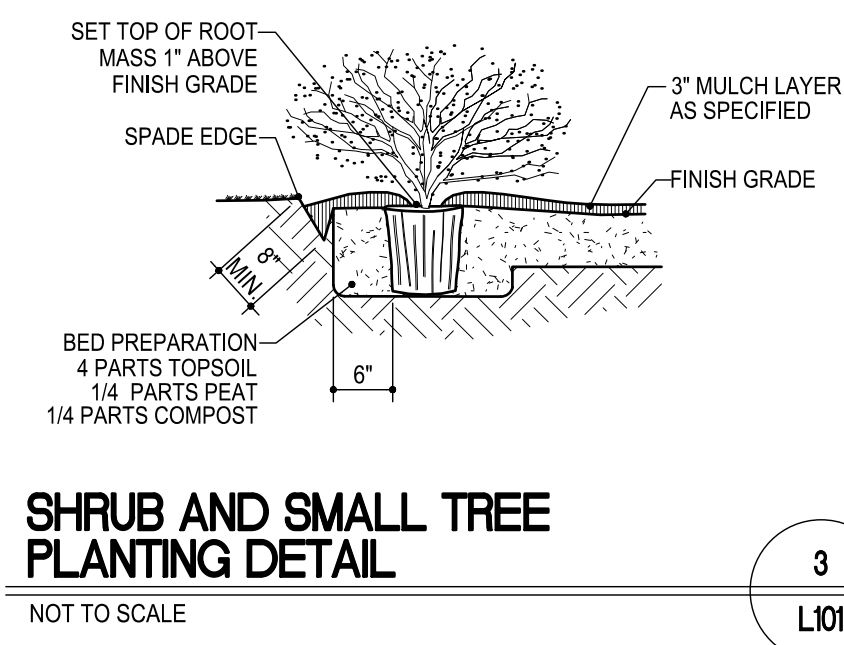
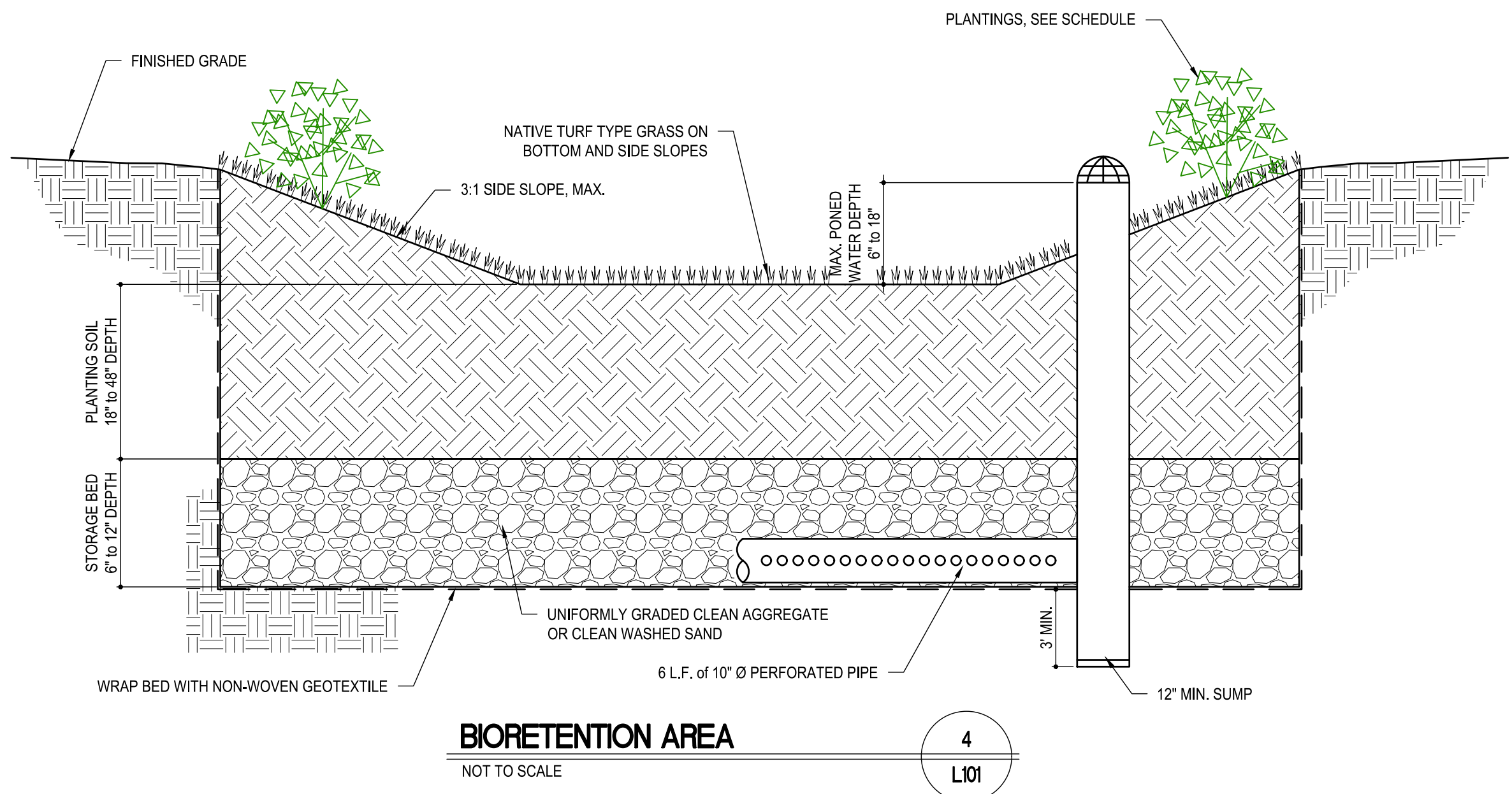
LANDSCAPE PLAN



REVISIONS:		
0	SUBMITTED FOR REVIEW	11/5/21
1	REVISED PER ISDH COMMENTS	12/3/21
2	REVISED TO ABOVE GROUND STORAGE	11/22/22
3	REVISED per TOWN COMMENTS	9/09/24
4	REVISED per TOWN COMMENTS	12/11/24
5	Revised Storm Outlet	9/26/25
6	REVISED per TOWN COMMENTS	11/06/25

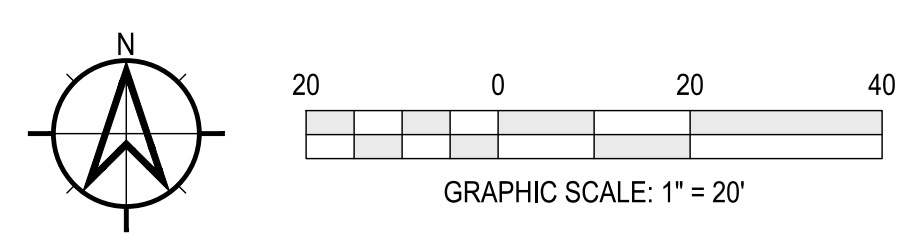
DRAWN BY: JBF
 CHECKED BY: BEM
 PROJECT NUMBER: 21346
 DATE: 1/13/22

SHEET NUMBER:
L101



PLANTING SCHEDULE								
LEGEND	KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE COND	REMARKS	HEIGHT SPREAD	QTY REQD
	WS	2	<i>Wisteria sinensis</i>	Blue Chinese Wisteria Tree	#1 Container	Ornamental Deciduous	10-15 ft 10-12 ft	1.25
	AR	2	<i>Acer Rubrum</i>	Red / Sugar Maple	#5 Container	Canopy Deciduous	40-50 ft 30-40 ft	2
	TP	2	<i>Thuja plicata x standishii</i>	Thuja Green Giant	24" height	EVERGREEN	30-40 ft 8-10 ft	1.5
	HS	8	<i>Hibiscus syriacus</i> 'Red Heart' <i>Hibiscus syriacus</i> 'Notawooden' <i>Hibiscus syriacus</i> 'JWNWOOD4'	Red Heart Rose of Sharon Lavender Chiffon Rose of Sharon Pink Chiffon Rose of Sharon	#3 Container	DECIDUOUS SHRUB	8-12 ft 6-10 ft	10
	SJ	4	<i>Spiraea nipponica</i> 'Snowmound' <i>Spiraea Japonica</i> 'Neon Flash' <i>Spiraea Japonica</i> 'Matgold'	Snowmound Spirea Neon Flash Spirea Rainbow Fizz Spirea	#1 container	DECIDUOUS SHRUB	2-7 ft 3-7 ft	

NOTE: Plants to be spaced at 10' o.c. to promote growth height of 30-40 feet.
 NOTE: Assorted mix of Hibiscus Plants in each grouping.
 NOTE: Assorted mix of Spirea Plants in each grouping.



Appendix B

Inspection Schedule

<u>Inspection Frequency</u>	<u>Maintenance Item</u>	<u>Maintenance Follow-up</u>	<u>Action Taken</u>
Annual & Post Major Storm Event		Vegetation	Routine mowing to a minimum 3 in.
		Erosion on Embankment	Erosion Control Measure will be repaired immediately
		Animal Burrows	Burrows should be removed at the time of routine mowing
		Drains Clear & Functioning	Drains shall be inspected to ensure positive drainage
		Leaks or Seeps	Leaks shall be repaired immediately to ensure positive flow
		Slope Protection Failure	Erosion Control Measure will be repaired immediately
		Obstructions	Obstructions shall be removed during routine mowing
Annual & Post Major Storm Event		Outlet Pipe Blocked	Outlet shall be cleared of debris immediately upon finding
		Debris Removed from Trash Guard	Obstructions shall be removed during routine mowing
		Sediment Build-up	Sediment shall be removed at a depth of 2 inches
		Pipe Condition	Pipes shall be inspected and repaired if needed
		Outfall Channel Function	Erosion Control Measure will be repaired immediately
Monthly		Sediment Build-up	Sediment shall be removed at a depth of 2 inches
Monthly	Miscellaneous	Erosion at Outfalls	Erosion Control Measure will be repaired immediately
		Encroachment into Easements	Encroachments shall be removed from all easements
		Complaints from Surrounding Owners	Complaints shall be heard and considered
		Public Hazards	All hazards to public safety shall be removed immediately
Quarterly / Major Storm Event	Impervious Surfaces	Drainage Flow to Collection Point	Remove obstructions
Quarterly / Major Storm Event	Swales	Drainage Flow	Remove obstructions
Quarterly / Major Storm Event	Storm Pipes / Cleanouts	Pipe Blockage	Remove obstructions / Flush

**APPENDIX C
BMP CHECKLIST**

Maintenance Guide

One of Arcadia's advantages is the ease of maintenance. Like any system that collects pollutants, the Arcadia hydrodynamic separator must be regularly maintained for continued effectiveness. Maintenance is a simple procedure performed using a vacuum truck or similar equipment. The system is designed to minimize the volume of water lost during routine maintenance, reducing disposal costs.

Contractors can access the pollutants stored in the manhole through the manhole cover. This allows them to gain vacuum hose access to the bottom of the manhole to remove sediment and trash. There is no confined space entry necessary for inspection or maintenance.

The entire maintenance procedure typically takes 2 to 4 hours, depending on the system's size, the amount of captured material, and the vacuum truck's capacity.

Local regulations may apply to the maintenance procedure. Safe and legal disposal of pollutants is the responsibility of the maintenance contractor. Maintenance should be performed only by a qualified contractor.

Inspection and Cleaning Cycle

Periodic inspection is necessary to determine the need for and frequency of maintenance. Inspections should begin as soon as construction is complete and then on an annual basis ongoing. Under normal use, the system will need to be cleaned every 1-3 years.

Sites that have excessive oil, fuel or sediment runoff may shorten the maintenance cycle. Periodic inspection is important.

Determining When to Clean

To determine the sediment depth, the maintenance contractor should lower a stadia rod into the manhole until it reaches the top of the captured sediment. Mark this spot on the rod, then continue pushing the rod through the sediment until it reaches the bottom of the sump. Next, mark the second spot on the rod then compare the two markings to determine the depth of the captured sediment.

Maintenance should occur when the sediment has reached a depth of 18" (450 mm).

Arcadia Storage Capacities

Model	Manhole Diameter in (mm)	Total System Volume Gallons (Liters)	Treatment Chamber Capacity Gallons (Liters)	Standard Sediment Capacity (18" depth) Yards ³ (m ³)	NJDEP Sediment Capacity (50% of Standard Depth) Yards ³ (m ³)
AR3	36 (914)	242 (917)	203 (767)	0.39 (0.30)	0.19 (0.15)
AR4	48 (1219)	635 (2402)	564 (2135)	0.70 (0.53)	0.35 (0.27)
AR5	60 (1524)	991 (3753)	881 (3336)	1.09 (0.83)	0.55 (0.42)
AR6	72 (1829)	1428 (5404)	1269 (4804)	1.57 (1.20)	0.79 (0.60)
AR8	96 (2438)	4136 (15656)	3854 (14588)	2.79 (2.14)	1.40 (1.07)
AR10	120 (3048)	7931 (30022)	7490 (28354)	4.36 (3.34)	2.18 (1.67)

Maintenance Procedures

1. Remove the manhole cover to provide access to the pollutant storage. Pollutants are stored in the sump, below the unit assembly. Access this area through the access cylinder (larger than 10" (254 mm) diameter for all sizes).
2. Use a vacuum truck or other similar equipment to remove all water, debris, oil and sediment. See Figure 1.
3. Use a high pressure hose to clean the manhole of all remaining sediment and debris. Then, use the vacuum truck to remove the water.
4. Fill the clean manhole with water until the level reaches the invert of the outlet pipe.
5. Replace the manhole cover.
6. Dispose of the polluted water, oil, sediment and trash at an approved facility.
 - a. Local regulations prohibit the discharge of solid material into the sanitary system. Check with the local sewer authority for authorization to discharge the liquid.
 - b. Some localities treat the pollutants as leachate. Check with local regulators about disposal requirements.
 - c. Additional local regulations may apply to the maintenance procedure.

Figure 1

