

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TOTAL BILL OF MATERIAL

ITEM	UNIT	CULVERT	RETAINING WALLS	TOTAL
Removal And Disposal Of Unsuitable Material	Cu Yd	255	170	425
Porous Granular Embankment	Cu Yd	270	277	547
Trench Backfill	Cu Yd	225	0	225
Geotechnical Fabric For Ground Stabilization	Sq Yd	140	0	140
Stone Riprap, Class A7	Sq Yd	75	0	75
Filter Fabric	Sq Yd	125	0	125
Removal of Existing Structures	Each	1	0	1
Structure Excavation	Cu Yd	315	881	1196
Concrete Structures	Cu Yd	0	244.5	244.5
Form Liner Textured Surface	Sq Ft	700	2670	3370
Reinforcement Bars, Epoxy Coated	Pound	13670	27360	41030
Concrete Box Culverts	Cu Yd	108.3	0	108.3
Precast Concrete Box Culverts 12' x 6'	Foot	54	0	54
Geocomposite Wall Drain	Sq Yd	81	150	231
Porous Granular Embankment, Special	Cu Yd	55	101	156

GENERAL NOTES

- All work and materials shall be in accordance with the Illinois Department of Transportation (IDOT) Standard Specifications for Road and Bridge Construction adopted January 1, 2007 and latest supplemental specifications and recurring special provisions, unless noted otherwise.
- The Contractor shall verify all dimensions in the field prior to commencing work. The engineer shall be notified of any discrepancies which may exist, prior to proceeding with the work.
- Any information concerning type or location of underground and other utilities is not guaranteed to be accurate or all inclusive. The Contractor is responsible for making his own determinations as to the type and location of the utilities as may be necessary to avoid damage thereto. Contractor shall call J.U.L.I.E. prior to excavation.
- The contractor is responsible for design, installation and removal of all excavation support systems.
- The excavation and work area shall be properly drained at all times during construction. All wet, loose, frozen or other unsuitable material shall be removed prior to placement of concrete or compacted backfill. The cost of any pumping required shall be included in the cost of Precast Concrete Box Culverts.
- Foundation design is based on soil information provided in Testing Service Corporation Report 73,706. Contractor shall have a geotechnical engineer to field verify the allowable bearing capacity under the box culvert and wingwall exceeds 3000 psf. Cost included in "Precast Concrete Box Culverts".
- It shall be the responsibility of the Contractor to divert the stream flow during construction in order to keep the construction areas free of water. The method of water diversion shall be subject to the approval of the Engineer and cost shall be included with "Precast Concrete Box Culvert".
- Layout of slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.
- For backfilling and embankment, see Standard Specifications.
- All removal or excavation items being disposed of at an uncontaminated soil fill operation or clean construction and demolition debris (CCDD) fill site shall meet the requirements of Public Act 96-1416. All costs associated with meeting these requirements shall be included in the unit price cost for the associated removal or excavation items in the contract. These costs shall include but are not limited to all required testing, lab analysis, certification by a licensed professional engineer, and state or local tipping fees.
- The exposed face of the north headwall and north wingwalls shall have a form liner textured surface. The pattern shall be Spec Formliners, Inc. Pattern #1548 - Chester Drystack or an approved equal. A 4" smooth border shall be added to the top of the wall and at all joints.
- The color of the form liner shall be approved by the Village. Cost included in "Form Liner Textured Surface".
- Concrete for cast-in-place end sections and wingwalls shall be paid for as "Concrete Box Culverts".

INDEX OF SHEETS

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DESIGN SPECIFICATIONS

2002 AASHTO Standard Specifications for Highway Bridges, 17th Edition

DESIGN STRESSES

FIELD UNITS

$f'_c = 3,500$ psi
 $f_y = 60,000$ psi (Reinforcement)

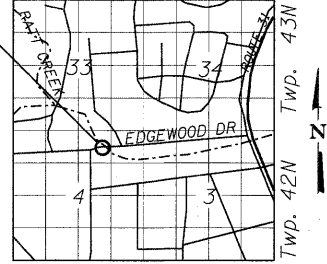
LOADING HS20-44

Allow 50#/sq. ft. for future wearing surface.

SEISMIC DATA

Seismic Performance Zone (SPZ) = A
Horizontal Bedrock Acceleration Coefficient (A) = 0.033g
Site Coefficient (S) = 1.25

Range 8E - 3rd PM



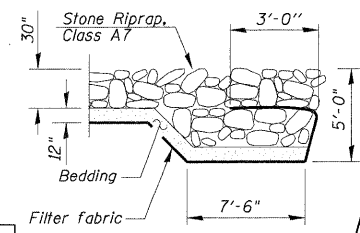
LOCATION SKETCH

CAST-IN-PLACE CONCRETE NOTES

- All cast-in-place concrete work shall be in accordance with section 503 of the Illinois Department of Transportation (IDOT) Standard Specifications for Road and Bridge Construction adopted January 1, 2007, supplemental specifications and recurring special provisions and as noted below.
- Reinforcement bars shall conform to the requirements of ASTM A 706 GR60.
- Exposed edges of cast-in-place concrete shall be beveled $\frac{3}{4}$ ".
- All construction joints shall be bonded.
- Concrete mix designs shall be submitted to the Engineer for review and approval a minimum of 7 days prior to ordering or placing concrete.
- Cover from the face of concrete to face of reinforcement bars shall be 3" for surfaces cast against earth and 2" for all other surfaces unless otherwise noted.
- Contractor shall coordinate with Precast Box Culvert Manufacturer to account for possible creep between box segments. Creep shall be determined prior to constructing second cast-in-place end section.

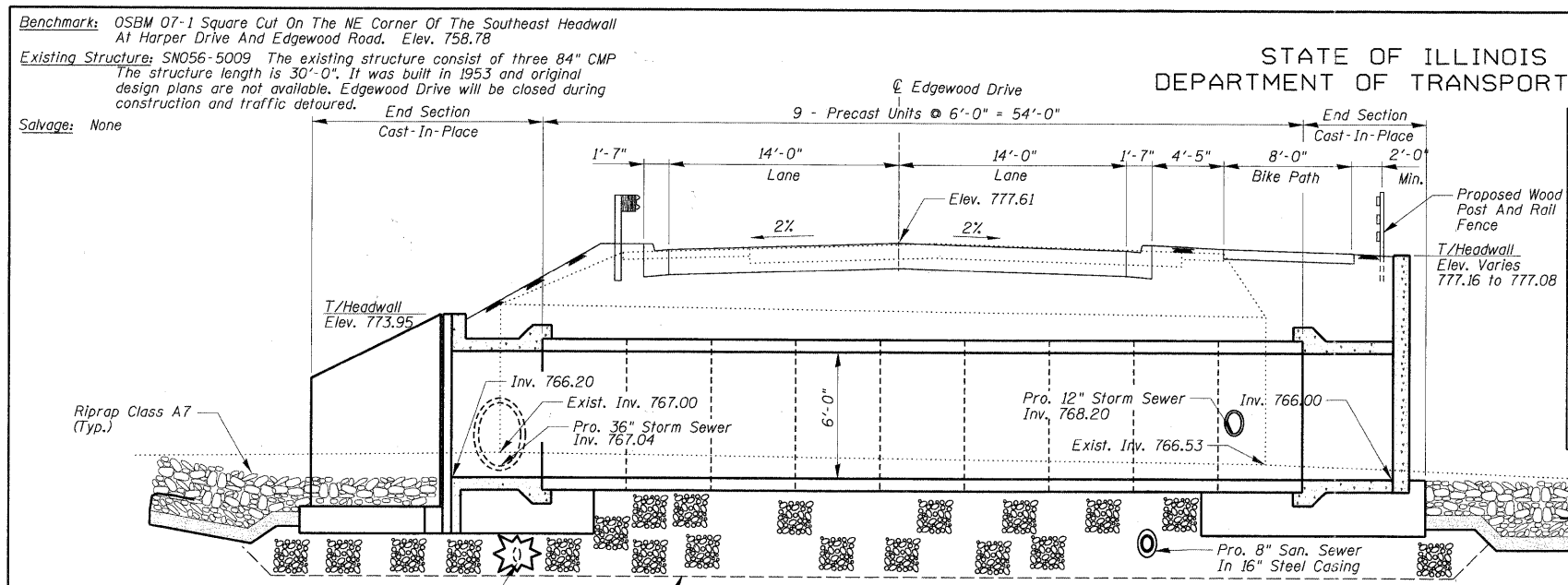
PRECAST CONCRETE BOX CULVERT

- All precast concrete box culvert work shall be in accordance with sections 504 and 540 of the Illinois Department of Transportation Standard Specifications for Road and Bridge Construction adopted January 1, 2007, supplemental specifications and recurring special provisions and as noted below.
- The precast concrete box culvert is a performance based system. The contractor shall be responsible for providing the design, engineering, fabrication and installation of the precast concrete box culvert. The contractor shall submit to the engineer calculations and shop drawings sealed by a Structural Engineer licensed in the state of Illinois for review prior to fabricating the precast concrete box culvert. Precast concrete box culverts shall conform to the requirements of AASHTO M259. The shop drawings shall include the ferrule loop locations and details.

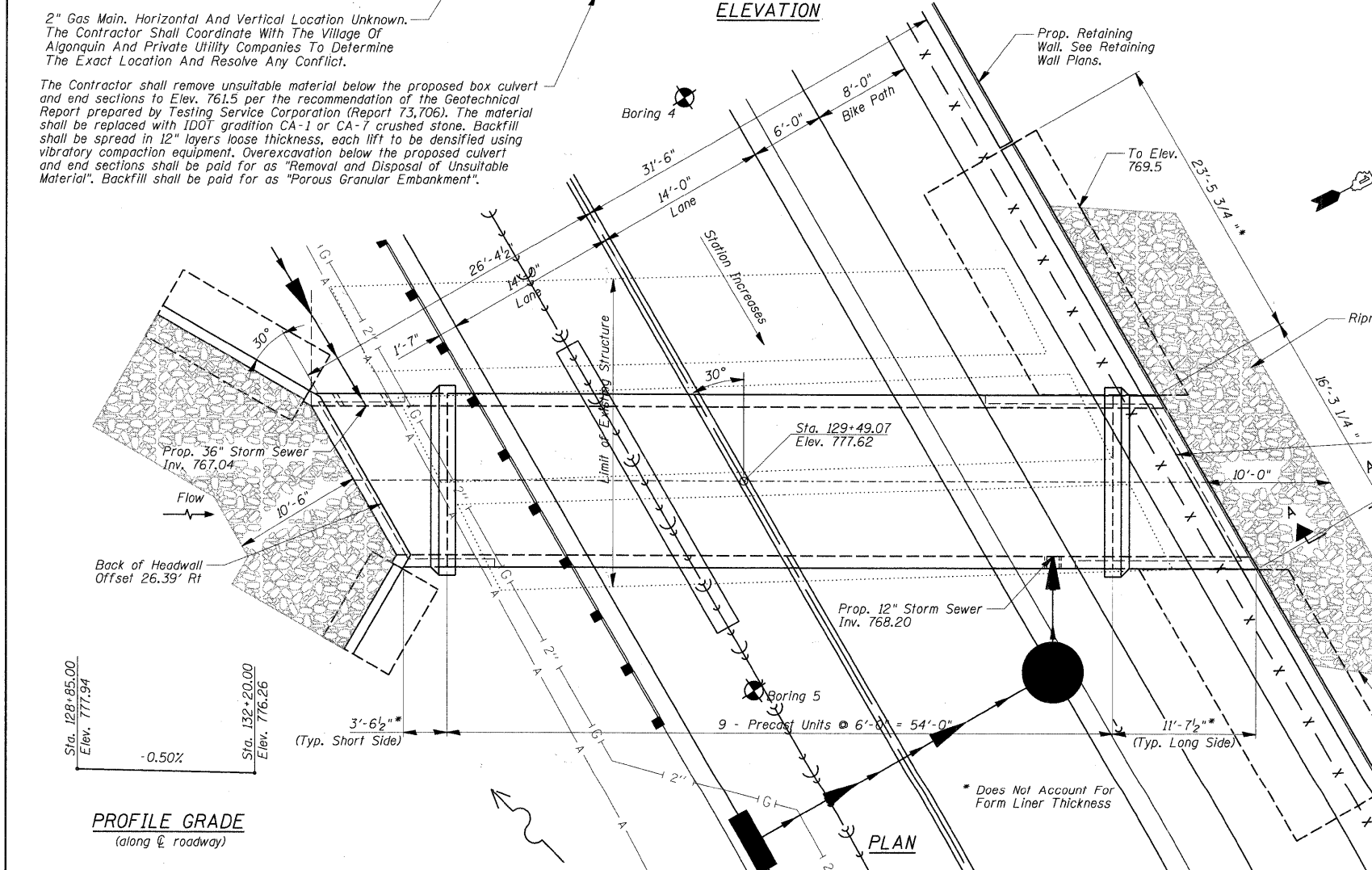


SECTION A-A

GENERAL PLAN
EDGEWOOD DRIVE OVER
RATT CREEK TRIBUTARY
F.A.U. RTE. 4010
SECTION 09-00078-00-WR
MCHENRY COUNTY
STA. 129+49.07



ELEVATION



PLAN

PROFILE GRADE
(along roadway)

DESIGNED	200
CHECKED	
DRAWN	
CHECKED	

EXAMINED	ENGINEER OF BRIDGE DESIGN
PASSED	ENGINEER OF BRIDGES AND STRUCTURES

WATERWAY INFORMATION

Drainage Area = 1.38 Sq. M Low Grade Elev. 777.29 @ Sta. 129+58.82

Flood	Freq. Yr.	Opening C.F.S.	Nat. Exist.	Prop. Prop.	H.W.E. Exist.	Head - Ft. Prop.	Headwater E.L. Prop.
10	201	30.0	25.3	768.06	2.52	1.34	770.58
Design	30	299	41.6	768.35	3.02	2.03	771.37
	50	341	43.9	768.46	3.22	2.31	771.68
Base	100	424	52.0	768.66	3.58	2.82	772.24
Max. Calc.	500	503	58.9	768.86	3.37	3.26	772.23



I Certify That To The Best Of My Knowledge, Information And Belief, This Bridge Design Is Structurally Adequate For The Design Loading Shown On The Plans. The Design Is An Economical One For The Style Of Structure And Complies With Requirements Of The Current "AASHTO Standard Specification For Highway And Bridges".

MAJID MOBASSERI
ILLINOIS REGISTRATION No. 081-005058
STRUCTURAL ENGINEER
EXPIRATION DATE: 11/30/10

SHEET NO. S-1 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4010	09-00078-00-WR	MCHENRY	128	80
CONTRACT NO. 63655				
FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT			