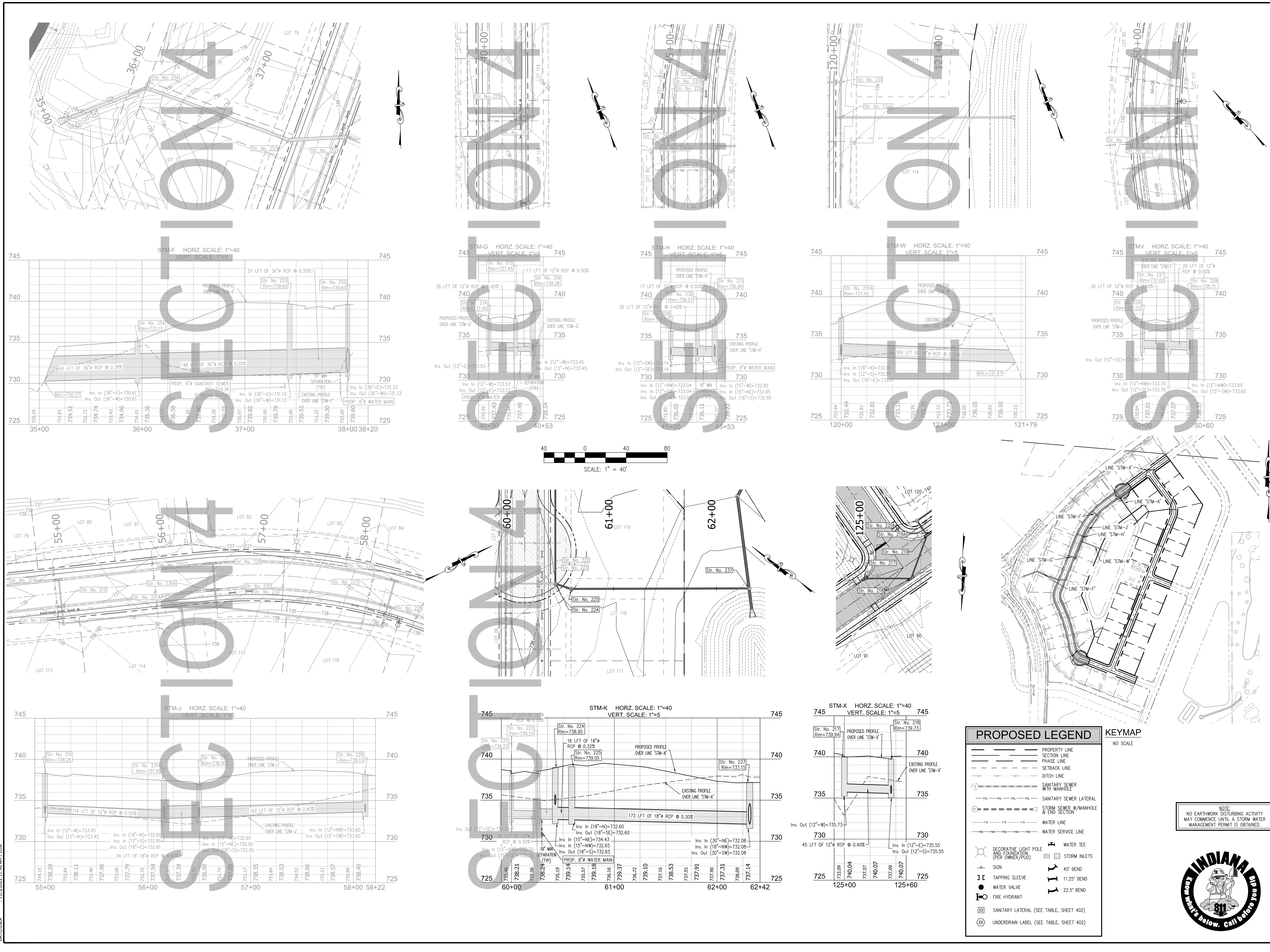


STORM PLAN & PROFILE

WINDSOR AT HILLVIEW - CONSTRUCTION PLANS

JOB No.	.	DRAWN	KLF/LMC/DEP
CHECKED	TEN	DATE	MAY 06, 2021
DESIGNED	DJM	APPR.	GJI

CROSSROAD ENGINEERS, PC
TRANSPORTATION & DEVELOPMENT CONSULTANTS
3417 SHERMAN DRIVE
BEECH GROVE, IN 46107
(317) 780-1555
CROSSROADENGINEERS.COM

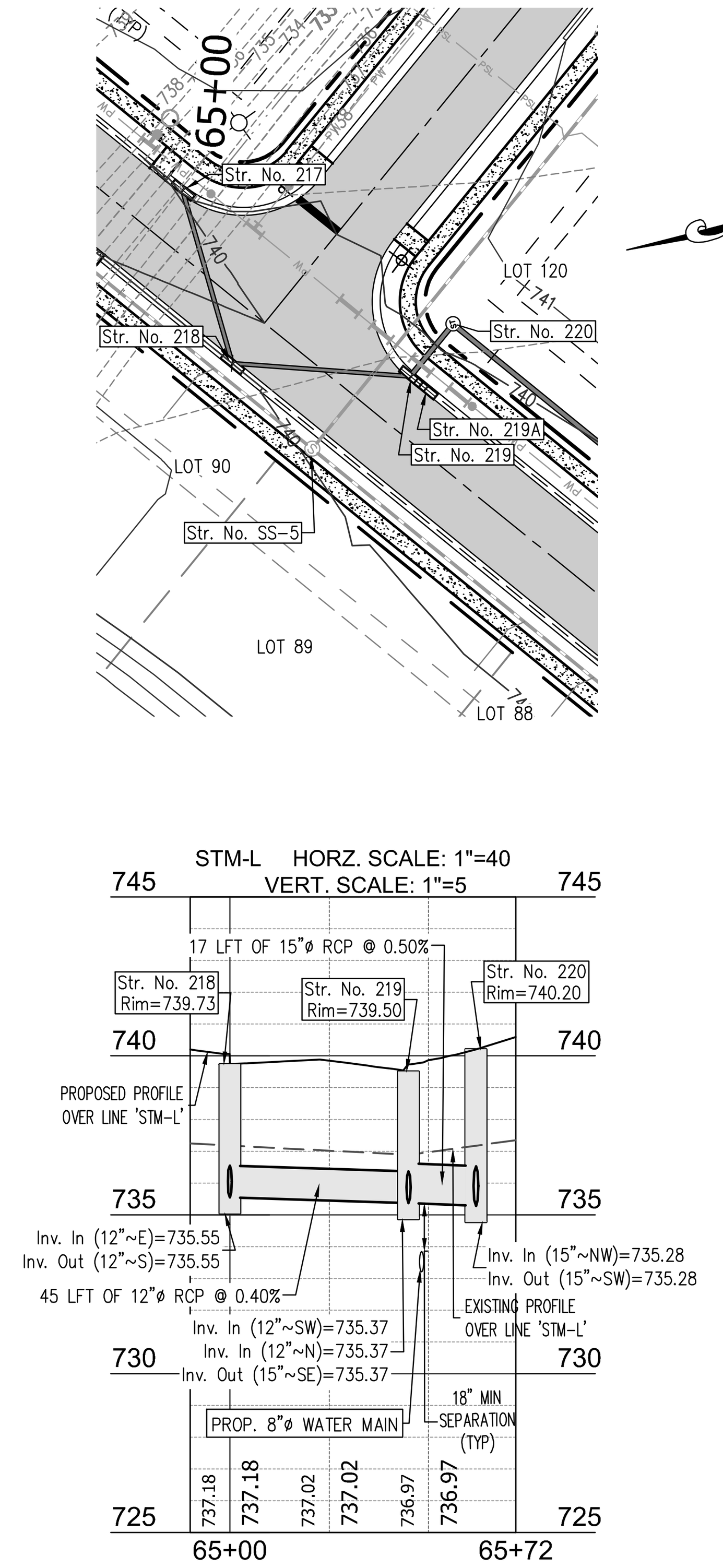
SHEET 701

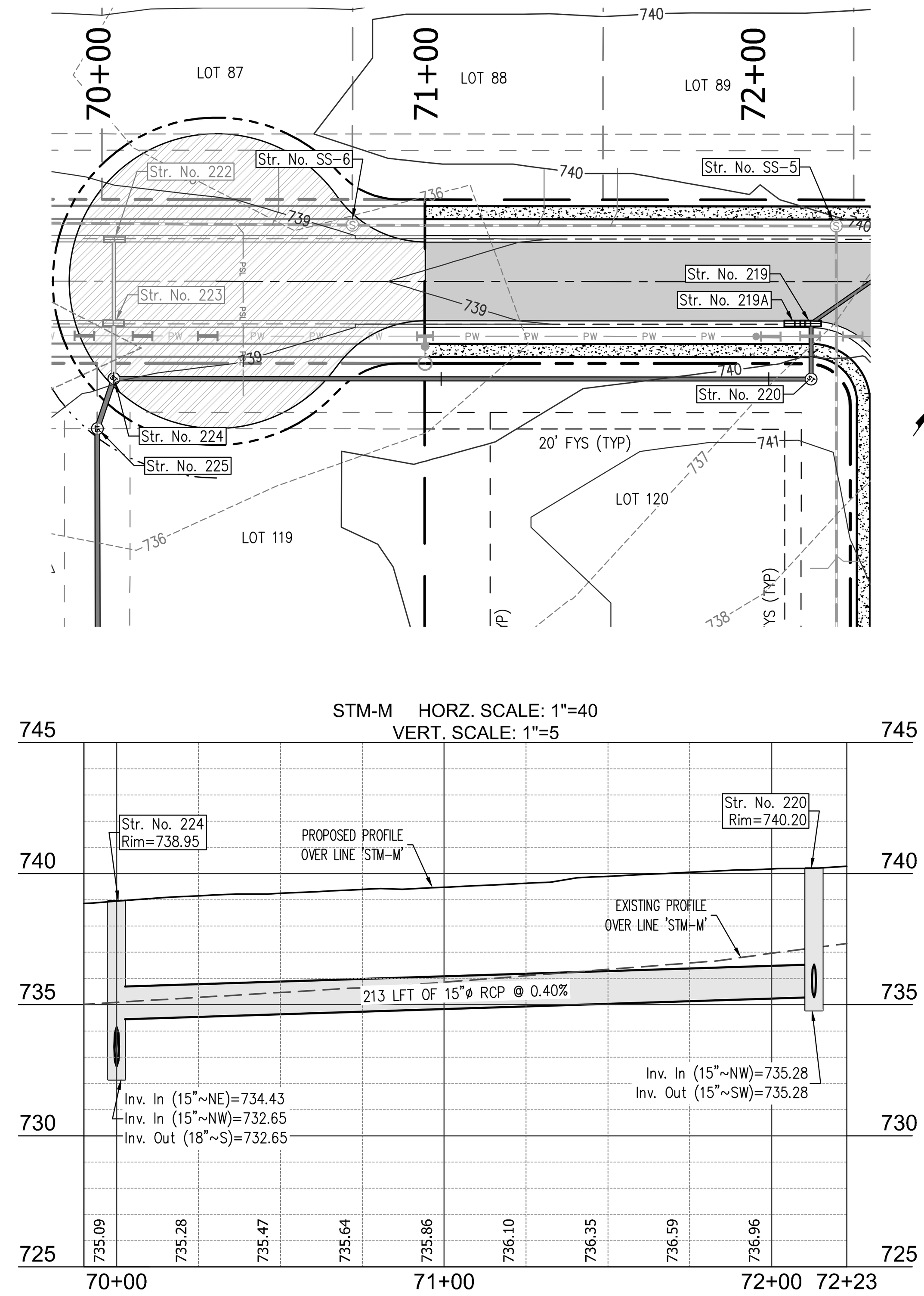
GREGORY J. ILKO
REGISTERED NO. 10300059
STATE OF INDIANA
PROFESSIONAL ENGINEER

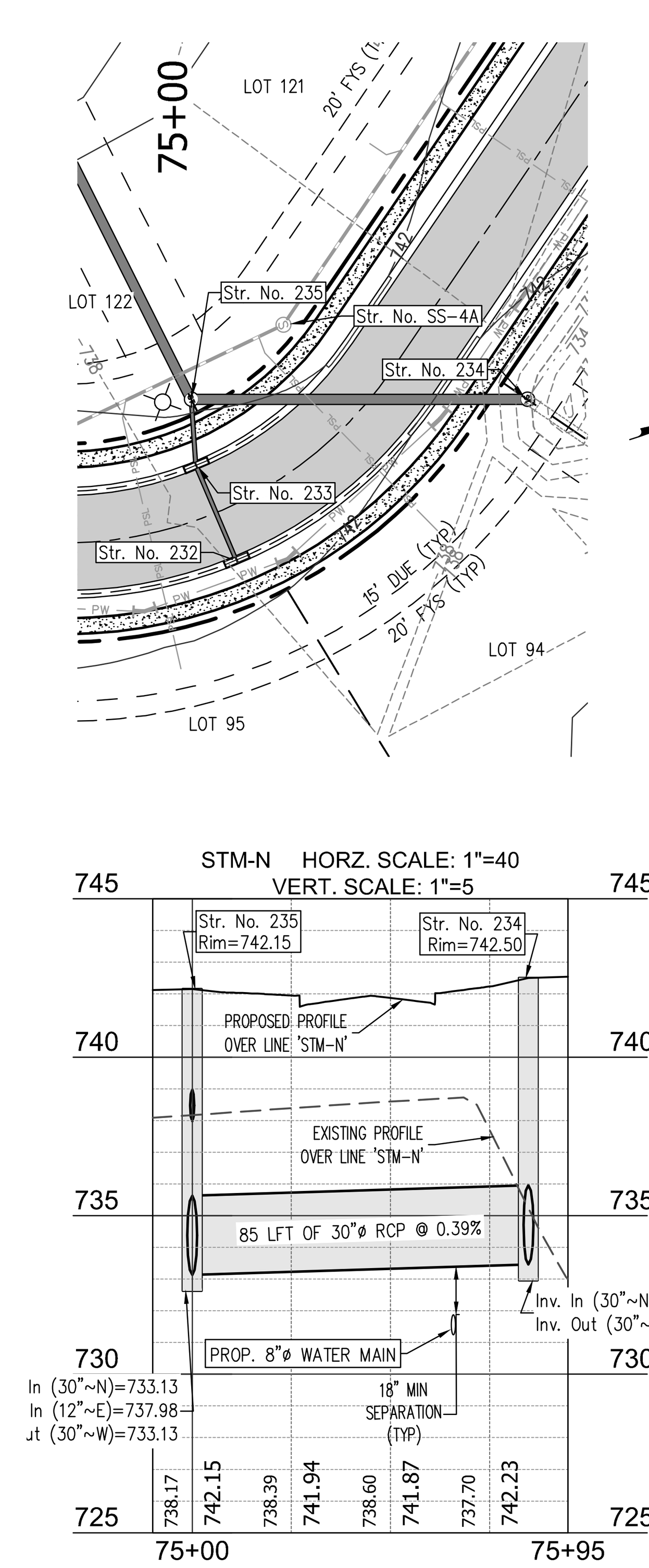
NO.	DATE	REVISIONS	BY	APPR.
9				
8				
7				
6				
5				
4	12.28.21	MISCELLANEOUS REVISIONS PER INAW COMMENTS	DJM	GJI
3	09.14.21	RELOCATED WATER MAIN FITTINGS AT THE INTERSECTIONS PER INAW COMMENTS	DJM	GJI
2	08.17.21	MISCELLANEOUS WATER MAIN RE-ALIGNMENTS AND ADDED ALTERNATIVE TECHNICAL STANDARD TABLE PER INAW COMMENTS	DJM	GJI
1	07.08.21	MISCELLANEOUS REVISIONS PER CITY OF FRANKLIN AND INAW PLAN REVIEW COMMENTS	DJM	GJI

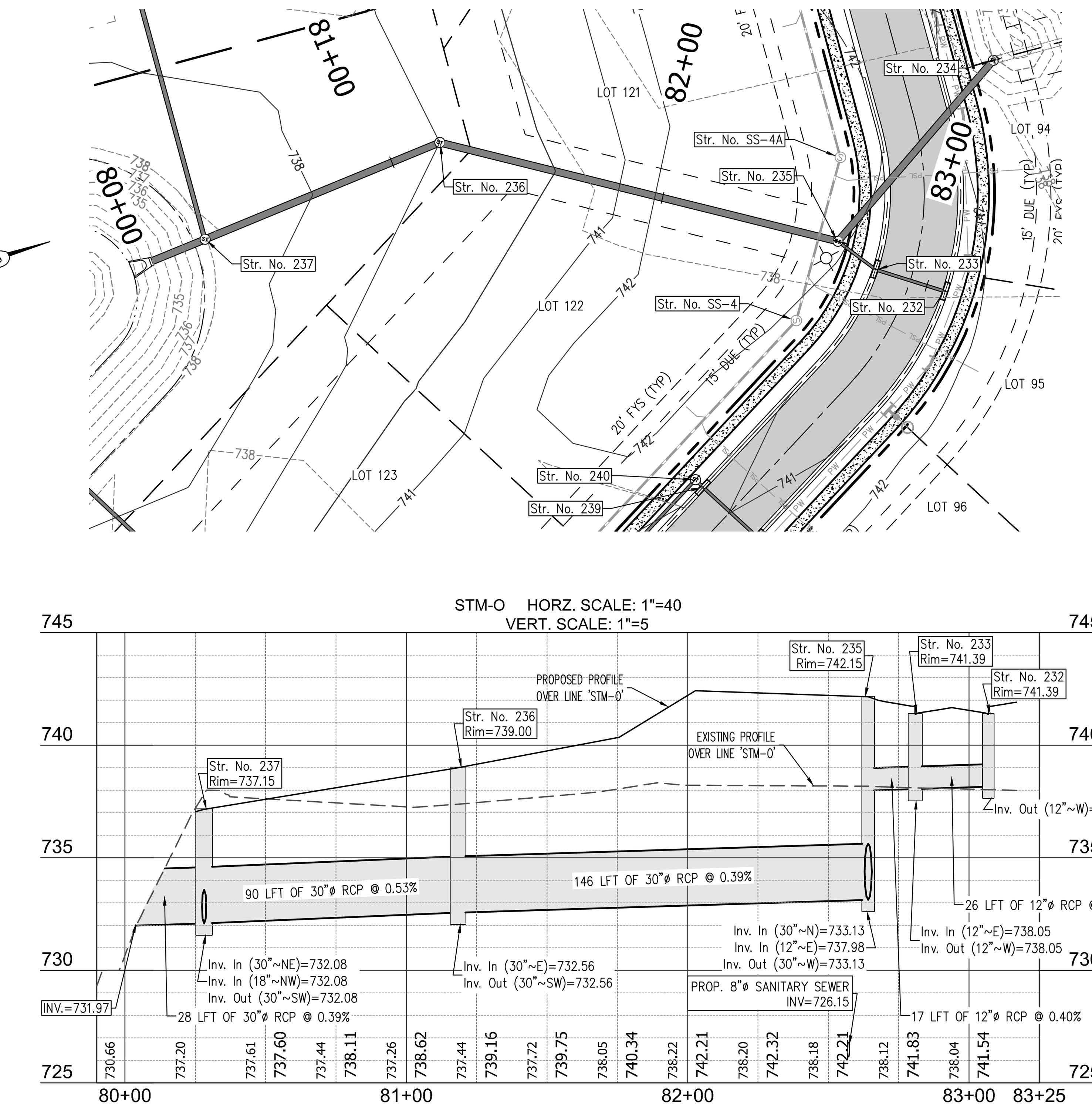
SHEET 701

DIRECTORY PATH : R:\Active\John Grimmer\Hillview CC Property\Old Town PUD Modifications\Design\CAD\PLANS\CONSTRUCTION PLANS SEC 3 SPLIT
FILENAME : 701 STORM PLAN & PROFILE.dwg
DATE/USER : 11/7/2022 11:46 AM / Lcox

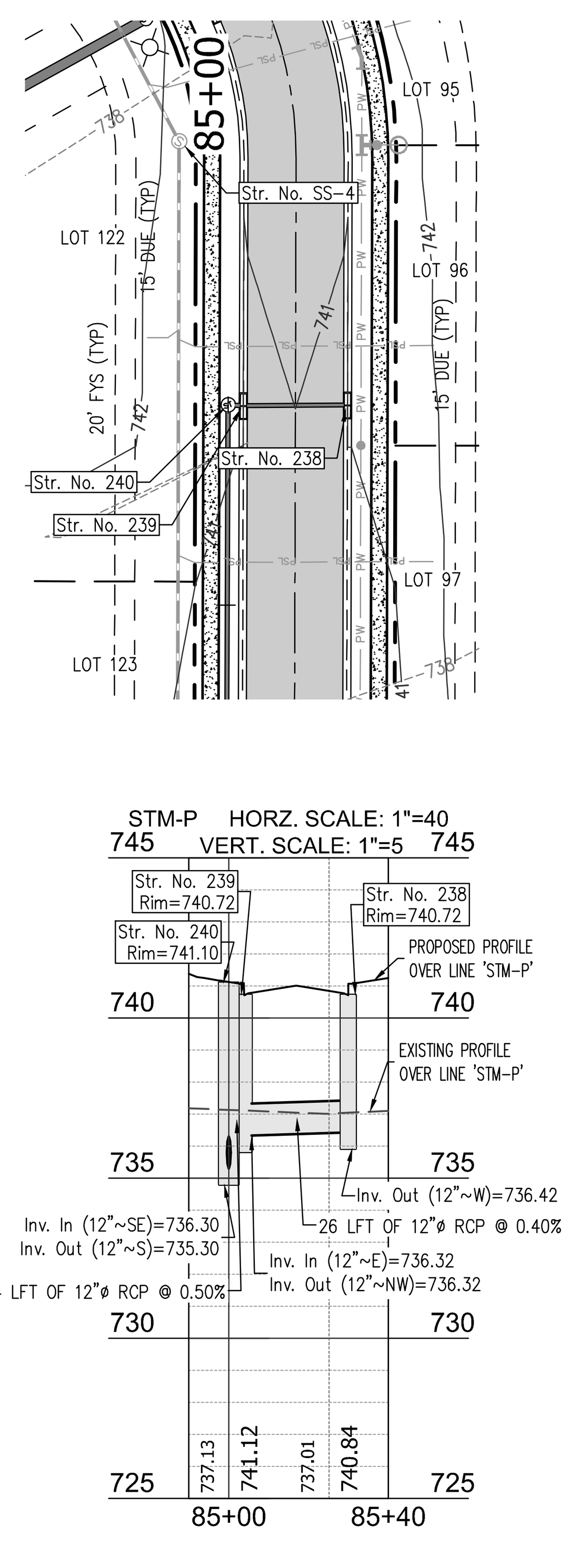


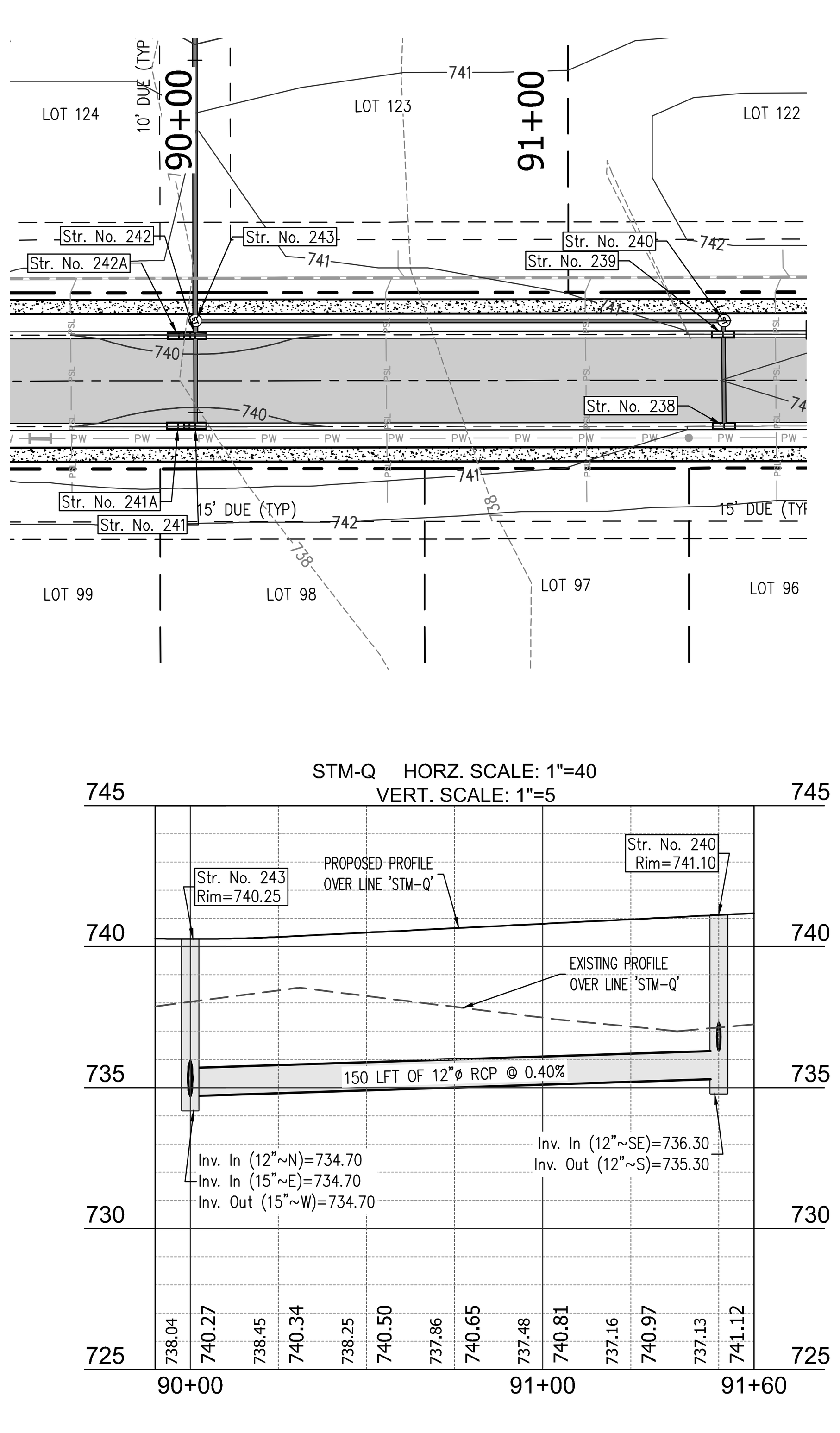


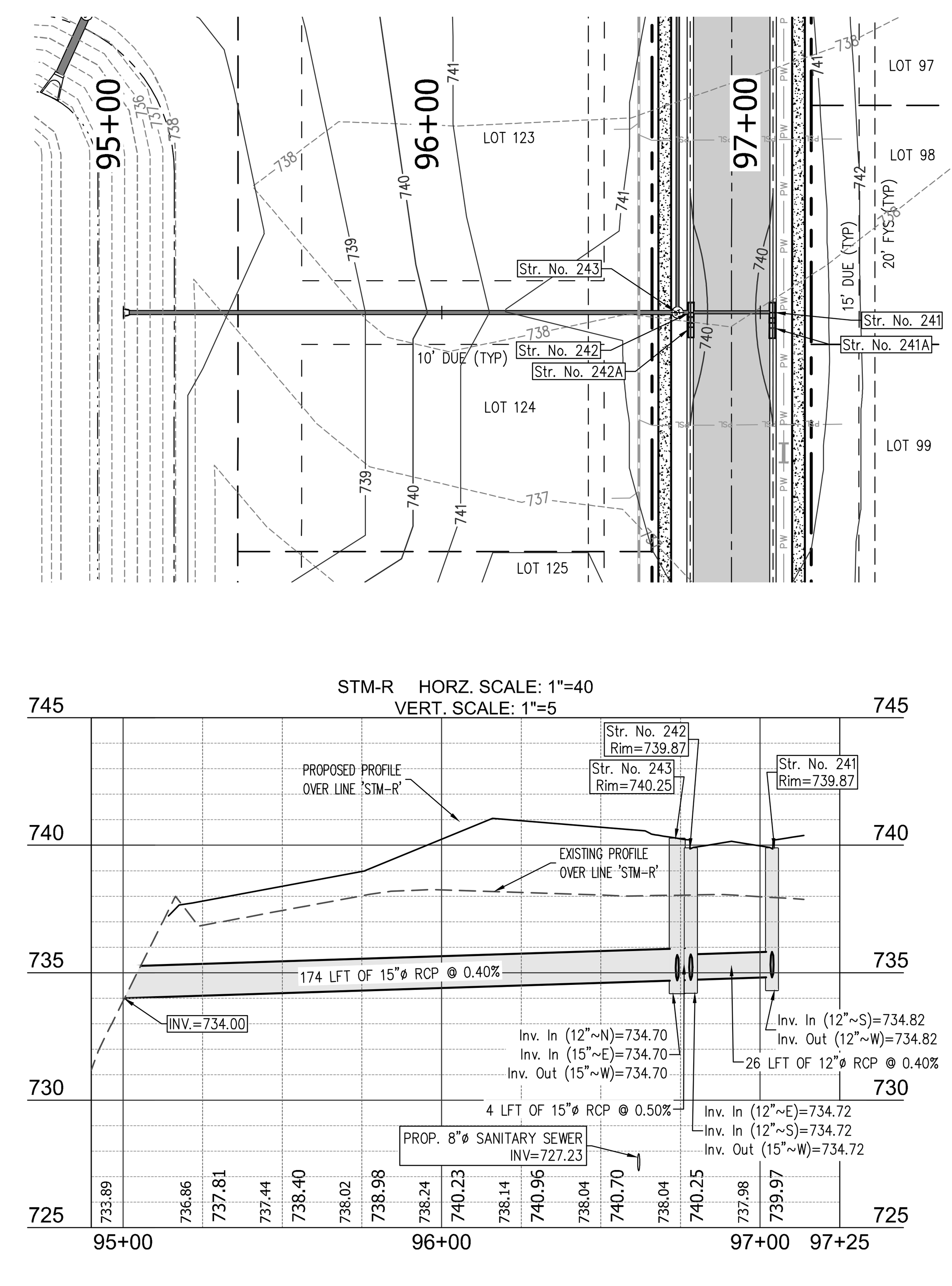


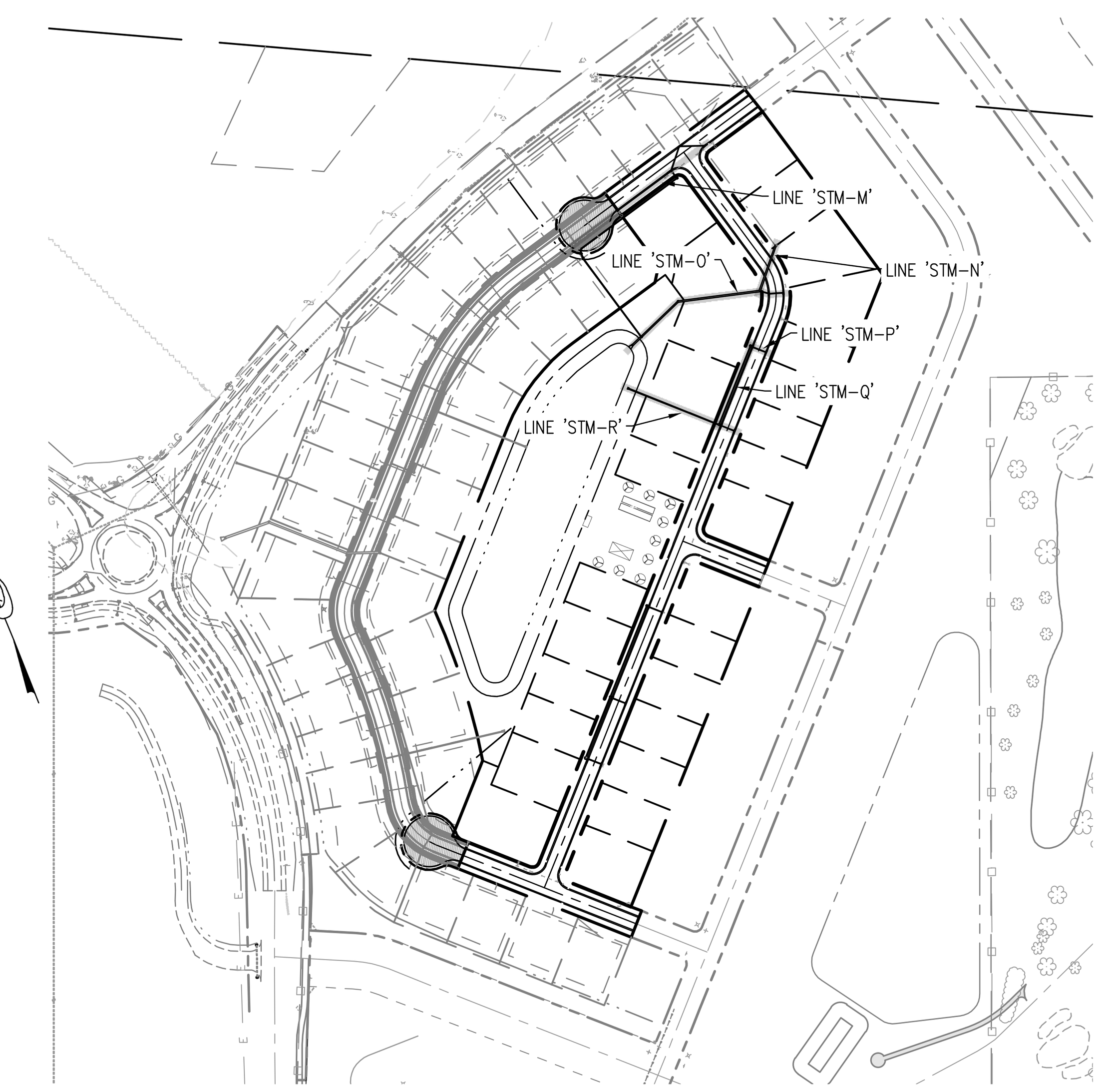


SCALE: 1" = 40'









KEYMAP
NO SCALE

PROPOSED LEGEND

- PROPERTY LINE
- SECTION LINE
- PHASE LINE
- SETBACK LINE
- DITCH LINE
- SANITARY SEWER WITH MANHOLE
- SANITARY SEWER LATERAL
- STORM SEWER W/MANHOLE & END SECTION
- WATER LINE
- WATER SERVICE LINE
- DECORATIVE LIGHT POLE AND FOUNDATION (PER OWNER/PUD)
- WATER TEE
- STORM INLETS
- SIGN
- 45° BEND
- TAPPING SLEEVE
- 11.25° BEND
- WATER VALVE
- 22.5° BEND
- FIRE HYDRANT
- SANITARY LATERAL (SEE TABLE, SHEET 402)
- UNDERDRAIN LABEL (SEE TABLE, SHEET 402)

NOTE:
NO EARTHWORK DISTURBING ACTIVITY MAY COMMENCE UNTIL A STORM WATER MANAGEMENT PERMIT IS OBTAINED.

INDIANA 811 — Know what's below. Call before you dig.

STORM PLAN & PROFILE

WINDSOR AT HILLVIEW - SECTION 3

CROSSROAD ENGINEERS, PC — Transportation & Development Consultants

JOB NO.	DATE	DRAWN	DESIGNED	CHECKED	APPR.
-	NOVEMBER 3, 2022	KLF/LMC/DEP	DJM	TEN	GJI

GREGORY J. ILKO — REGISTERED No. 10300059 — STATE OF INDIANA — PROFESSIONAL ENGINEER

PRELIMINARY — NOT FOR CONSTRUCTION

NO.	DATE	REVISIONS	BY	APPR.
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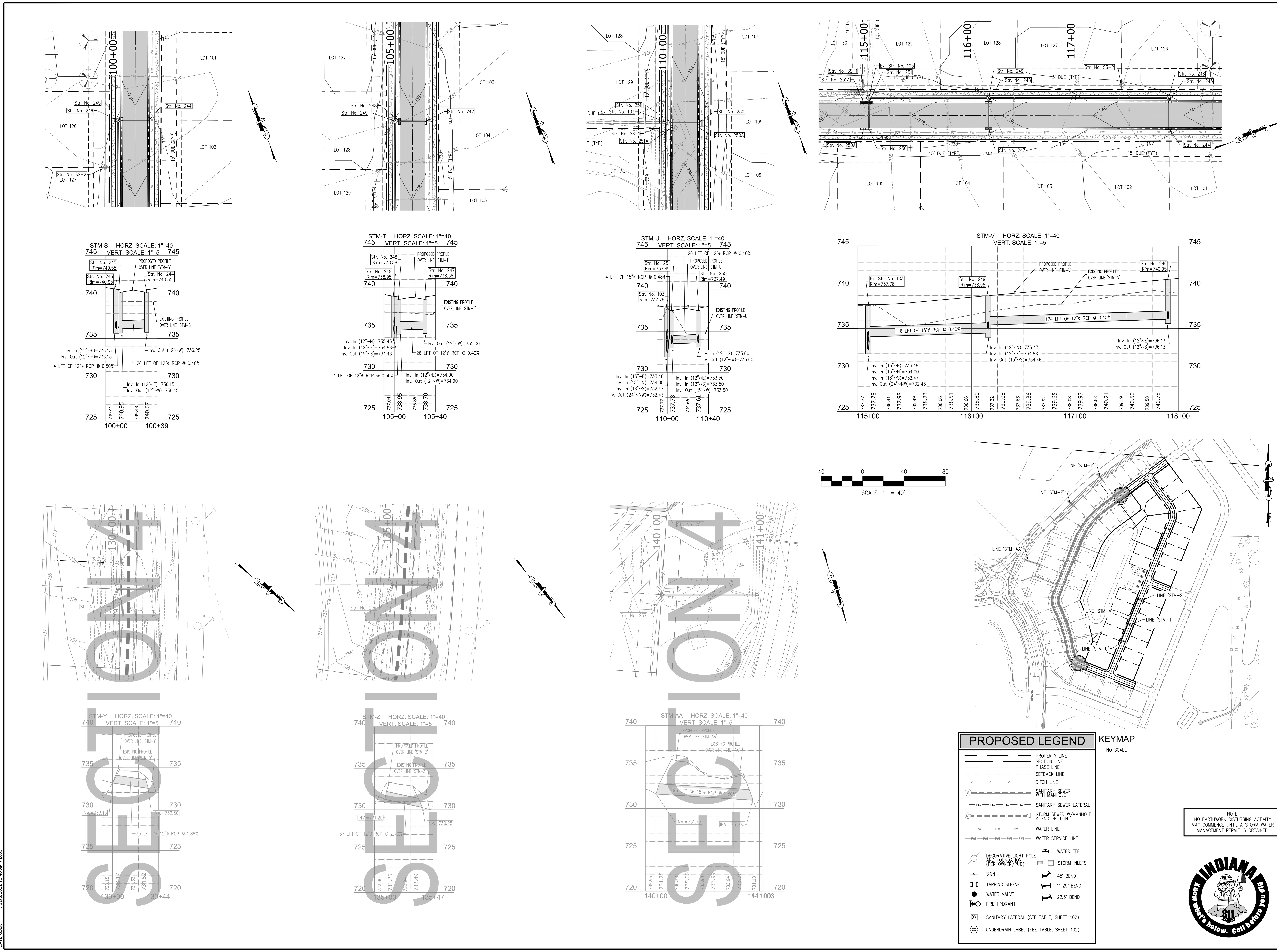
SHEET 702

DIRECTORY PATH : R:\Active\John Grimmer\Hillview CC Property\Old Town PUD Modifications\Design\CAD\PLANS\CONSTRUCTION PLANS SEC 3 SPLIT
FILENAME : 702 STORM PLAN & PROFILE.dwg
DATE/USER : 11/3/2022 11:46 AM / Lcoax



STORM PLAN & PROFILE

WINDSOR AT HILLVIEW - SECTION 3

CROSSROAD ENGINEERS, PC
Transportation & Development Consultants
115 N. 17th AVENUE, BEECH GROVE, IN 46107 (317) 780-1555

JOB No.	.		
DRAWN	KLF/LMC/DEP	CHECKED	TEN
DESIGNED	DJM	APPR.	GJI
DATE	NOVEMBER 3, 2022	SHEET	703

GREGORY J. ILKO REGISTERED No. 10300059 STATE OF INDIANA PROFESSIONAL ENGINEER
PRELIMINARY NOT FOR CONSTRUCTION

NO.	DATE	REVISIONS	BY	APPR.
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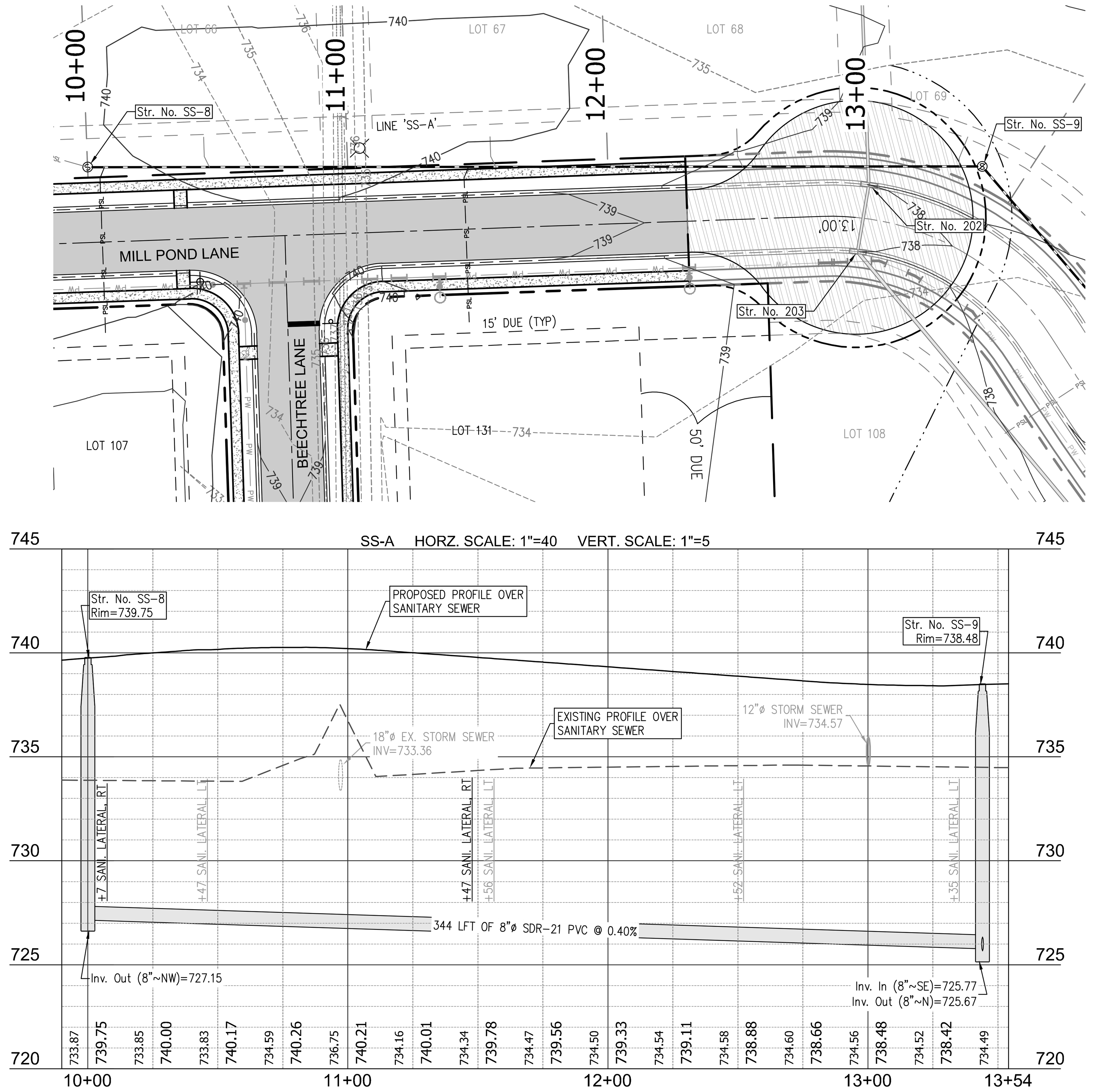
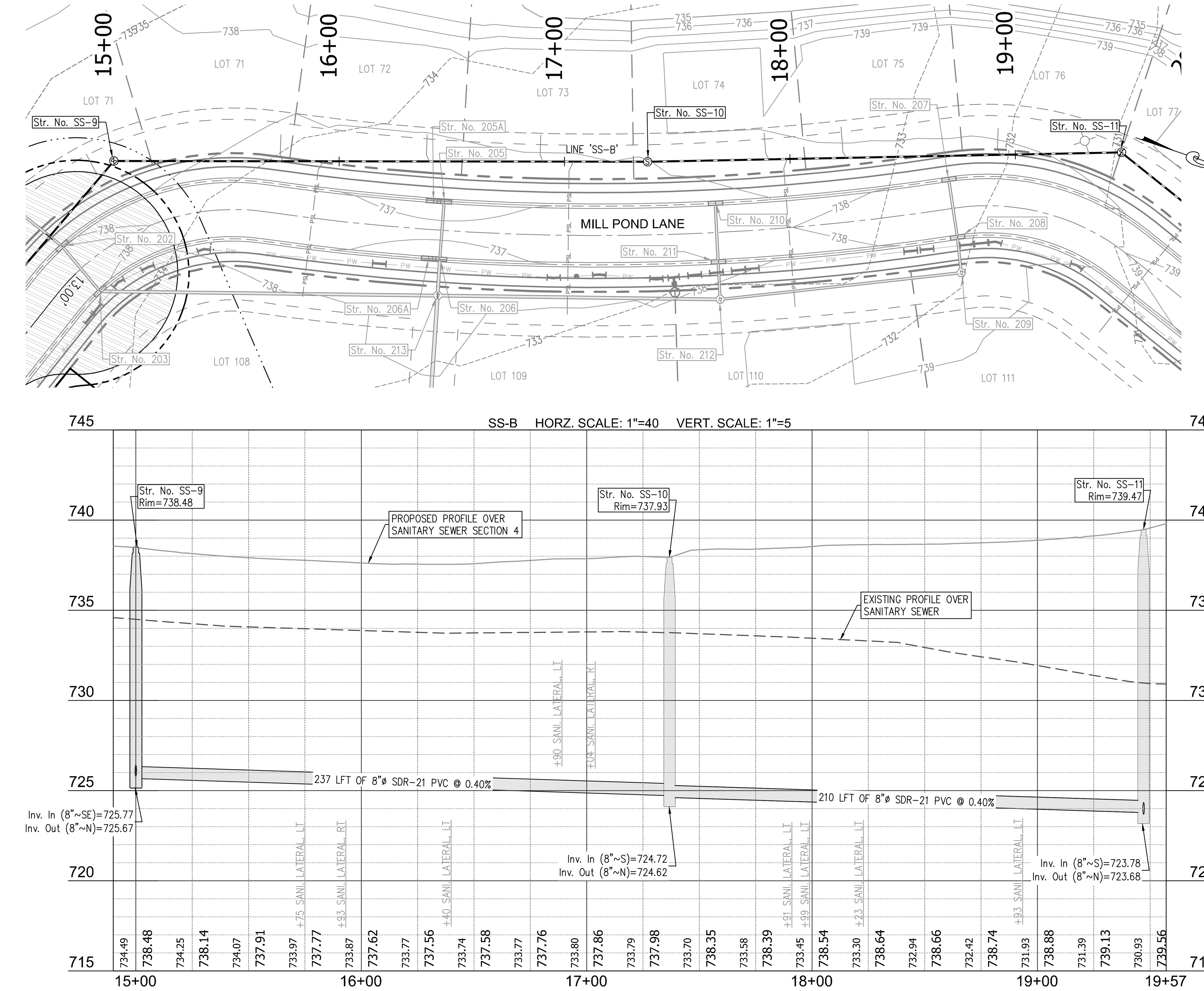
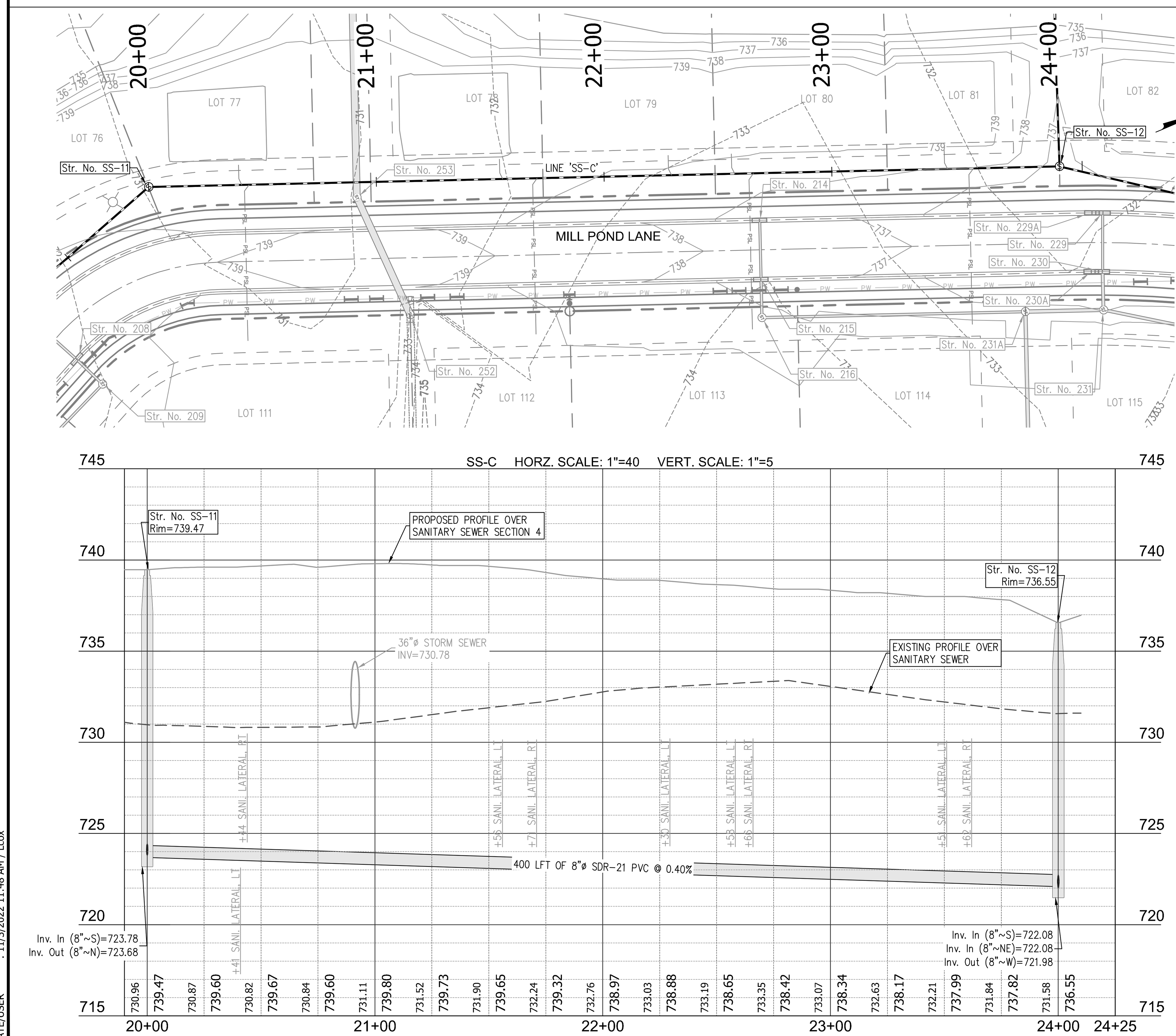
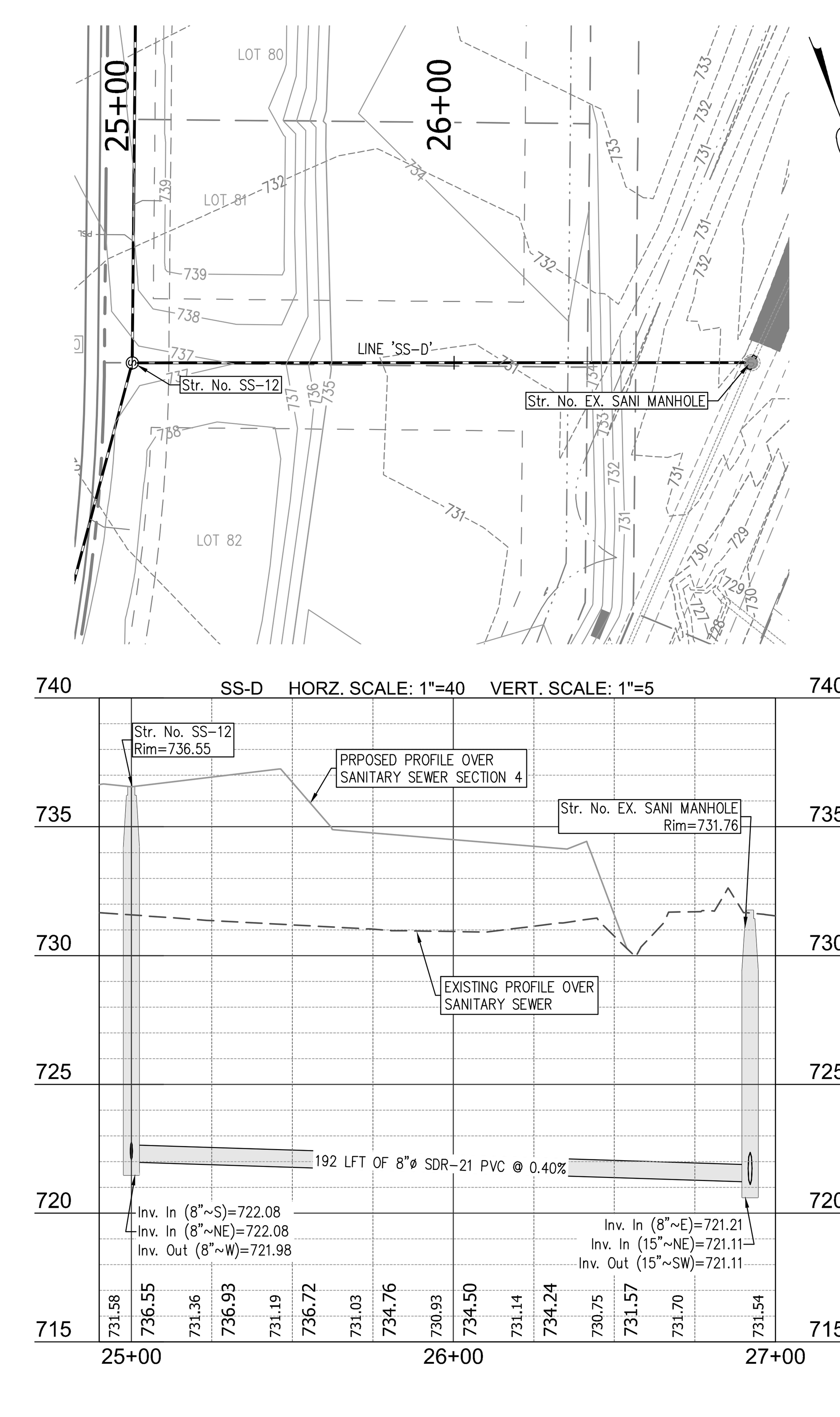
SHEET 703

DIRECTORY PATH : R:\Active\John Grimmer\Hillview CC Property\Old Town PUD Modifications\Design\CAD\PLANS\CONSTRUCTION PLANS SEC 3 SPLIT
FILENAME : 703 STORM PLAN & PROFILE.dwg
DATE/USER : 11/3/2022 11:46 AM / Ccox









SCALE: 1" = 40'

Know what's below. Call before you dig.

"IT'S THE LAW"

CALL 2 WORKING DAYS BEFORE YOU DIG

1-800-382-5544 or 811

CALL TOLL FREE

PER INDIANA STATE LAW IS-69-1991. IT IS AGAINST THE LAW TO EXCAVATE WITHOUT NOTIFYING THE UNDERGROUND LOCATION SERVICE TWO (2) WORKING DAYS BEFORE COMMENCING WORK.

NOTE:
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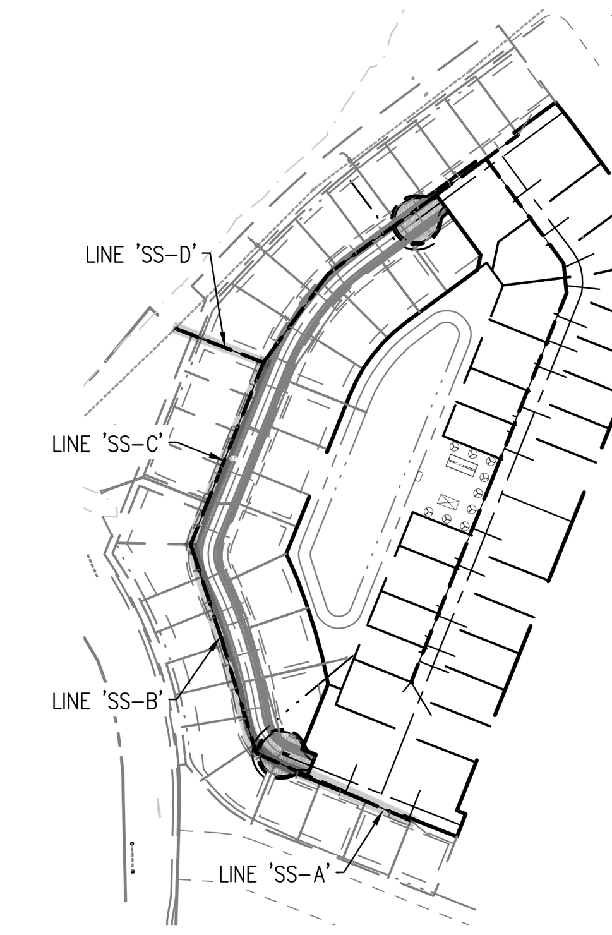

KEYMAP
NO SCALE

SANITARY PLAN & PROFILE

WINDSOR AT HILLVIEW - CONSTRUCTION PLANS

JOB No.	.	DRAWN	KLF/LMC/DEP
		CHECKED	TEN
DATE	MAY 06, 2021	DESIGNED	DJM
		APPR.	GJI

CROSSROAD ENGINEERS, PC
TRANSPORTATION & DEVELOPMENT CONSULTANTS
3417 SHERMAN DRIVE
BEECH GROVE, IN 46107
(317) 780-1555
CROSSROADENGINEERS.COM

SHEET 800

GREGORY J. ILKO REGISTERED NO. 10300059 STATE OF INDIANA PROFESSIONAL ENGINEER

NO.	DATE	REVISIONS	BY	APPR.
9				
8				
7				
6				
5				
4	12.28.21	MISCELLANEOUS REVISIONS PER INAW COMMENTS	DJM	GJI
3	09.14.21	RELOCATED WATER MAIN FITTINGS AT THE INTERSECTIONS PER INAW COMMENTS	DJM	GJI
2	08.17.21	MISCELLANEOUS WATER MAIN RE-ALIGNMENTS AND ADDED ALTERNATIVE TECHNICAL STANDARD TABLE PER INAW COMMENTS	DJM	GJI
1	07.08.21	MISCELLANEOUS REVISIONS PER CITY OF FRANKLIN AND INAW PLAN REVIEW COMMENTS	DJM	GJI

SHEET 800

DIRECTORY PATH : R:\Active\John Grimmer\Hillview CC Property\Old Town PUD Modifications\Design\CAD\PLANS\CONSTRUCTION PLANS SEC 3 SPLIT
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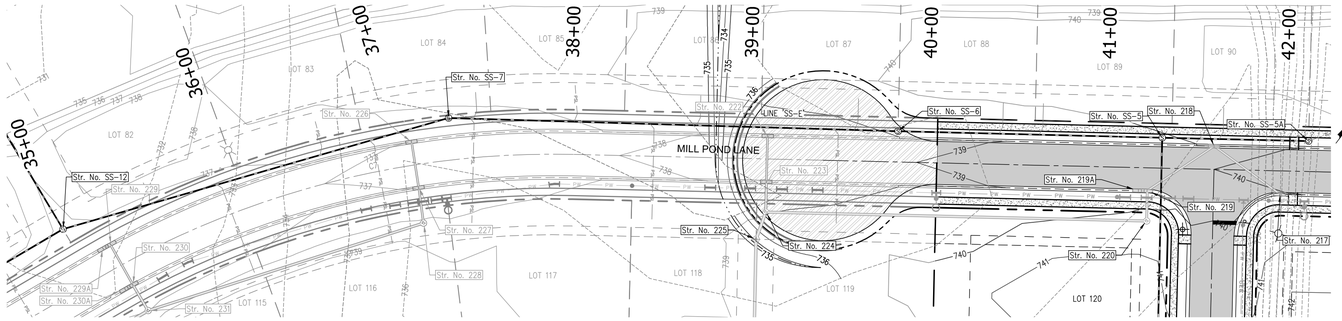
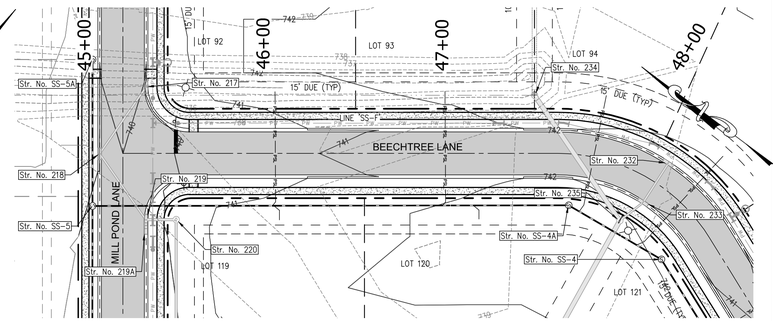
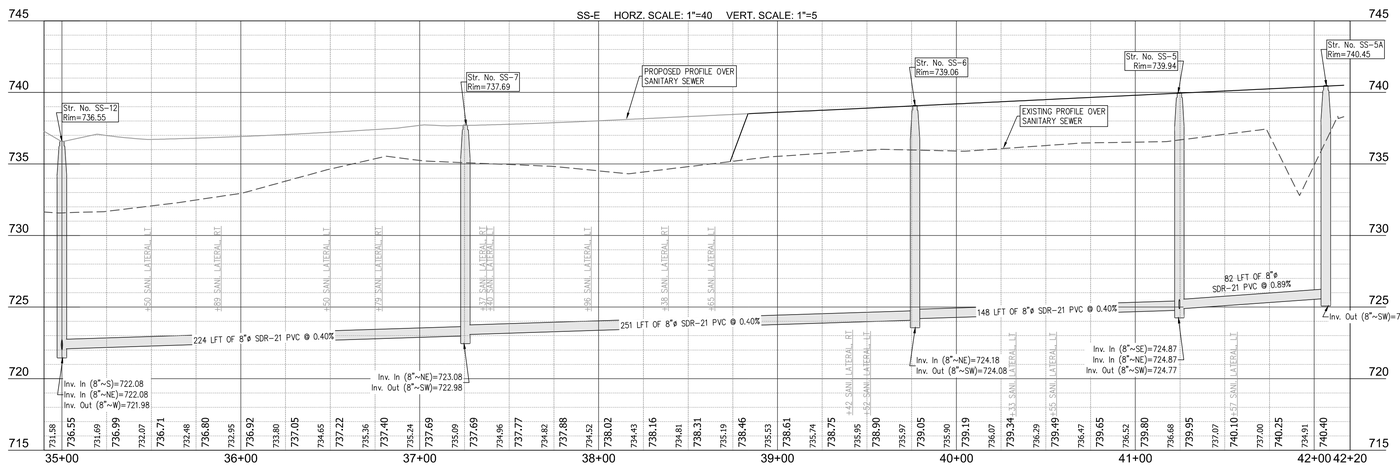
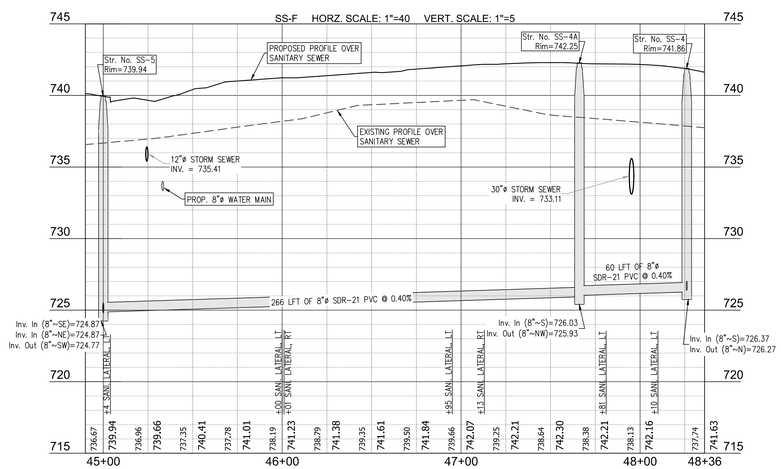
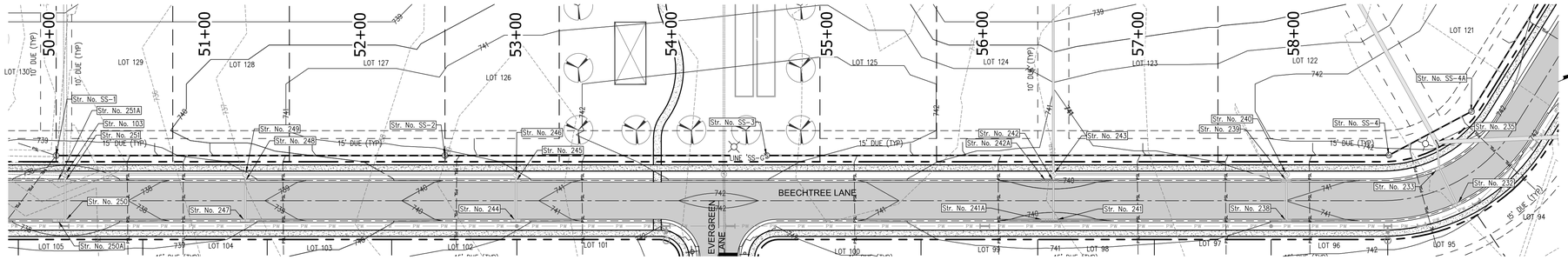
DATE/USER : 11/3/2022 11:48 AM / Lcox

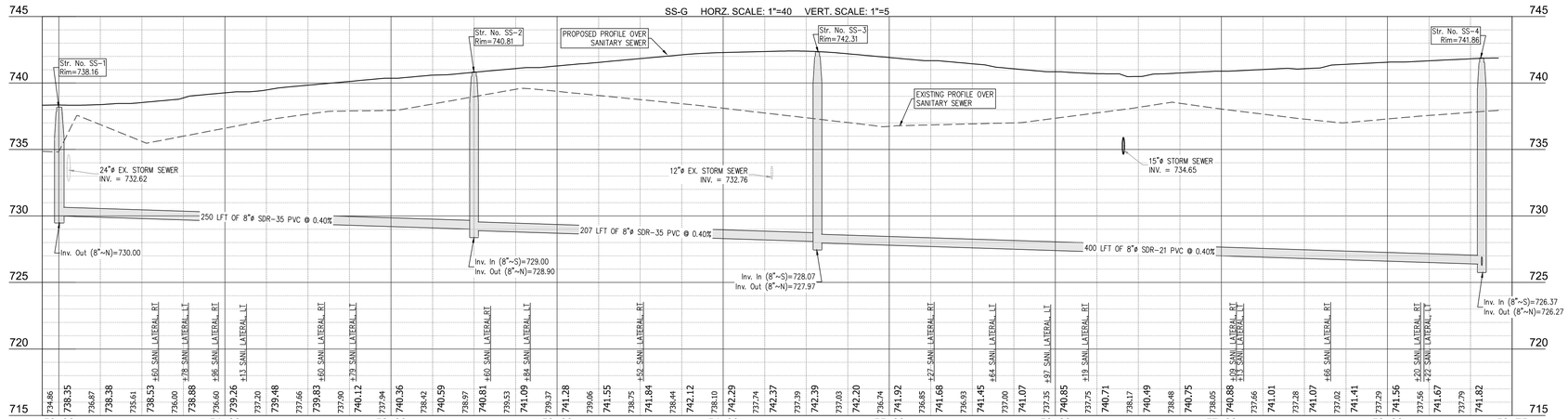


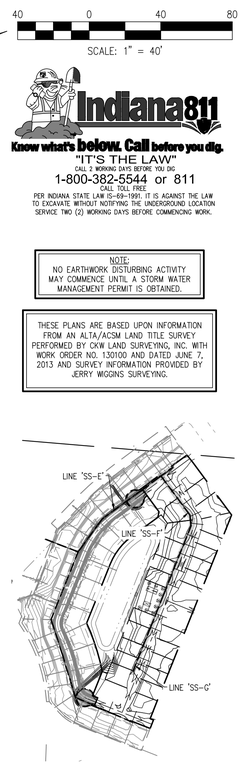












40 0 40 80
SCALE: 1" = 40'

Indiana811
Know what's below. Call before you dig.
"IT'S THE LAW"
CALL 2 WORKING DAYS BEFORE YOU DIG
1-800-382-5544 or 811
CALL TOLL FREE
PER INDIANA STATE LAW IS-69-1991, IT IS AGAINST THE LAW TO EXCAVATE WITHOUT NOTIFYING THE UNDERGROUND LOCATION SERVICE TWO (2) WORKING DAYS BEFORE COMMENCING WORK.

NOTE:
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CROSSROAD ENGINEERS, PC
Transportation & Development Consultants
115 N. 17th AVENUE, BEECH GROVE, IN 46107 (317) 780-1555

SHEET 801

SANITARY PLAN & PROFILE

WINDSOR AT HILLVIEW - SECTION 3

JOB No.	.	CHECKED	TEN
DRAWN	KLF/JMC/DEP	APPR.	GJI
DESIGNED	DJM		
DATE	NOVEMBER 3, 2022		

GREGORY J. ILKO — REGISTERED PROFESSIONAL ENGINEER — STATE OF INDIANA — 10300059 — PRELIMINARY PLANS NOT FOR CONSTRUCTION

NO.	DATE	REVISIONS	BY	APPR.
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SHEET 801

DIRECTORY PATH : R:\Active\John Grimmer\Hillview CC Property\Old Town PUD Modifications\Design\CAD\PLANS\CONSTRUCTION PLANS SEC 3 SPLIT
FILENAME : 801 SANITARY PLAN & PROFILE.dwg
DATE/USER : 11/2/2022 11:48 AM / Lcox

KEYMAP

NO SCALE

SCALE: 1" = 40'

Indiana811
Know what's below. Call before you dig.
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WATERLINE NOTE: HORIZONTAL AND VERTICAL DEFLECTIONS OF THE WATER MAIN ARE NOT PERMITTED. VERTICAL SEPARATIONS AND CHANGES IN HORIZONTAL ALIGNMENT SHALL BE ACHIEVED WITH BENDS AND FITTINGS. ALL INSTALLED VERTICAL AND HORIZONTAL FITTINGS AND BENDS SHALL CLEARLY BE INDICATED ON AS-BUILT DRAWINGS.

CROSSROAD ENGINEERS, PC
Transportation & Development Consultants
115 N. 17th AVENUE, BEECH GROVE, IN 46107 (317) 780-1555

WATER MAIN PLAN AND PROFILE

WINDSOR AT HILLVIEW - SECTION 3

JOB No.	.	DRAWN	KLF/JMC/DEP	CHECKED	TEN	APPR.	GJI
DATE	NOVEMBER 3, 2022	DESIGNED	DJM				

SHEET 900

PRELIMINARY NOT FOR CONSTRUCTION

GREGORY J. ILKO, REGISTERED PROFESSIONAL ENGINEER, STATE OF INDIANA, 10300059

NO.	DATE	BY	APPR.
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REVISIONS

SHEET 900

DIRECTORY PATH : D:\Active\John Grimmer\Hillview CC Property\Old Town PUD Modifications\Design\CAD\PLANS\CONSTRUCTION PLANS SEC 3 SPLIT
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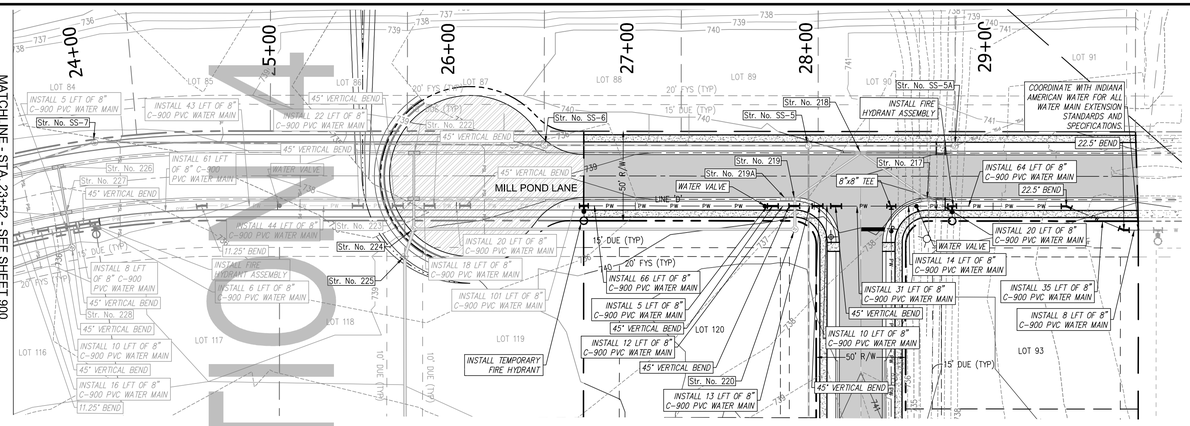

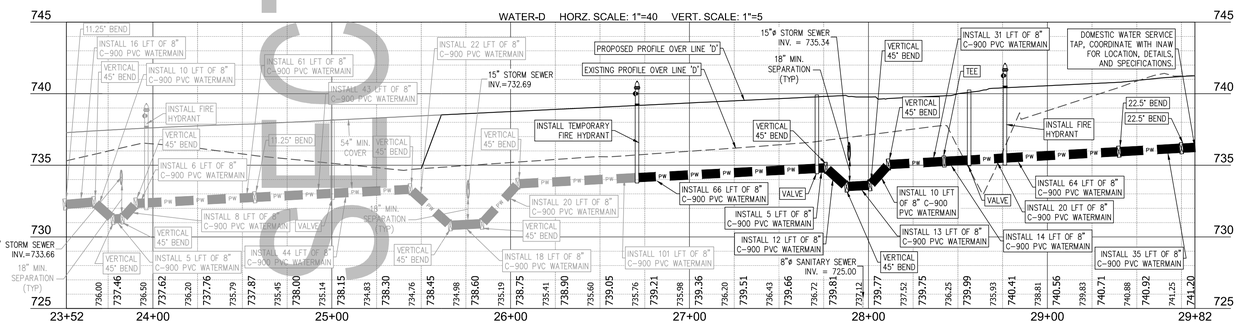

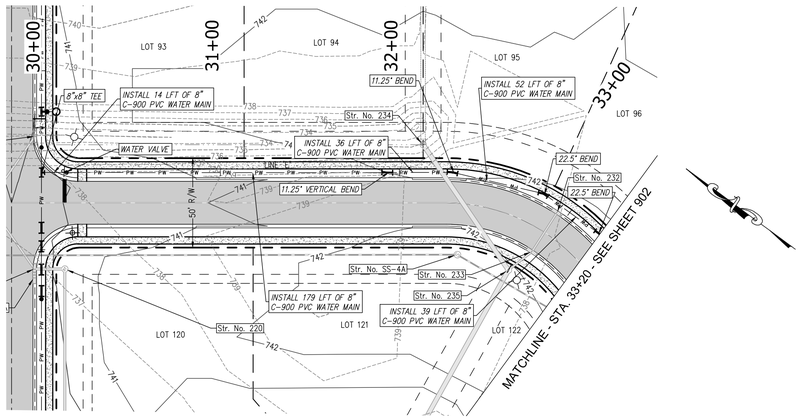

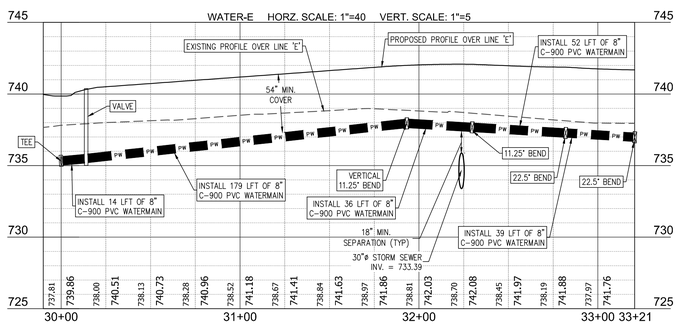

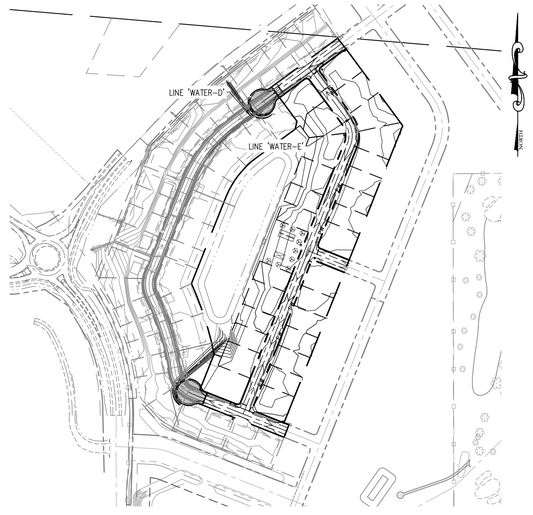

KEYMAP

NO SCALE

40 0 40 80

SCALE: 1" = 40'

Indiana811

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PER INDIANA STATE LAW IS-69-1991, IT IS AGAINST THE LAW TO EXCAVATE WITHOUT NOTIFYING THE UNDERGROUND LOCATION SERVICE TWO (2) WORKING DAYS BEFORE COMMENCING WORK.

NOTE:
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THESE PLANS ARE BASED UPON INFORMATION FROM AN ALTA/ACSM LAND TITLE SURVEY PERFORMED BY CKW LAND SURVEYING, INC. WITH WORK ORDER NO. 130100 AND DATED JUNE 7, 2013 AND SURVEY INFORMATION PROVIDED BY JERRY WIGGINS SURVEYING.

WATERLINE NOTE: HORIZONTAL AND VERTICAL DEFLECTIONS OF THE WATER MAIN ARE NOT PERMITTED. VERTICAL SEPARATIONS AND CHANGES IN HORIZONTAL ALIGNMENT SHALL BE ACHIEVED WITH BENDS AND FITTINGS. ALL INSTALLED VERTICAL AND HORIZONTAL FITTINGS AND BENDS SHALL CLEARLY BE INDICATED ON AS-BUILT DRAWINGS.

CROSSROAD ENGINEERS, PC
Transportation & Development Consultants
115 N. 17th AVENUE, BEECH GROVE, IN 46107 (317) 780-1555

WATER MAIN PLAN AND PROFILE

WINDSOR AT HILLVIEW - SECTION 3

JOB No.	.	DRAWN	KLF/JMC/DEP	CHECKED	TEN	APPR.	GJI
DATE	NOVEMBER 3, 2022	DESIGNED	DJM				

SHEET 901

GREGORY J. ILKO REGISTERED PROFESSIONAL ENGINEER 10300059 STATE OF INDIANA

PRELIMINARY PLANS NOT FOR CONSTRUCTION

NO.	DATE	REVISIONS	BY	APPR.
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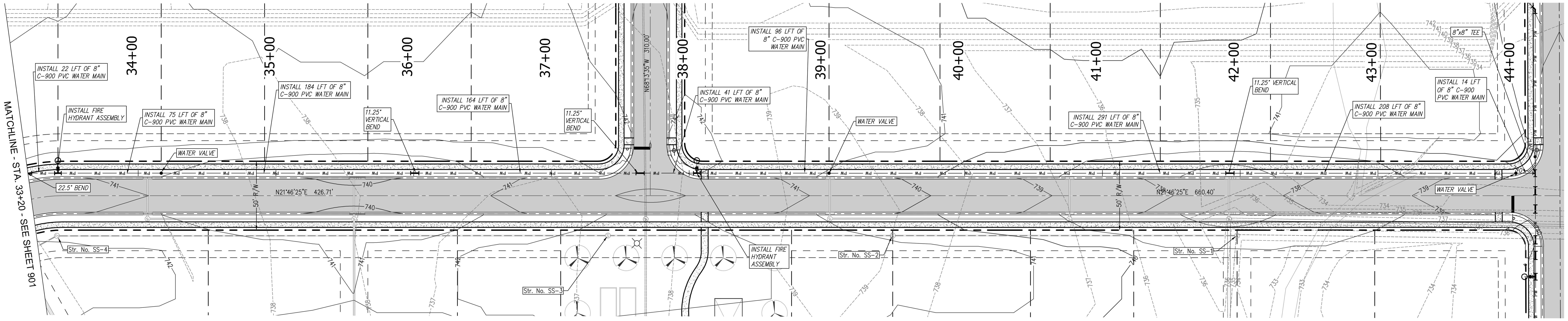
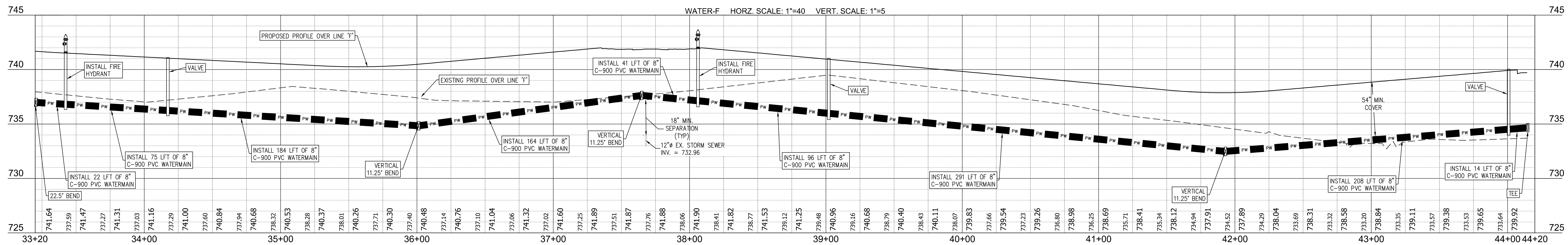
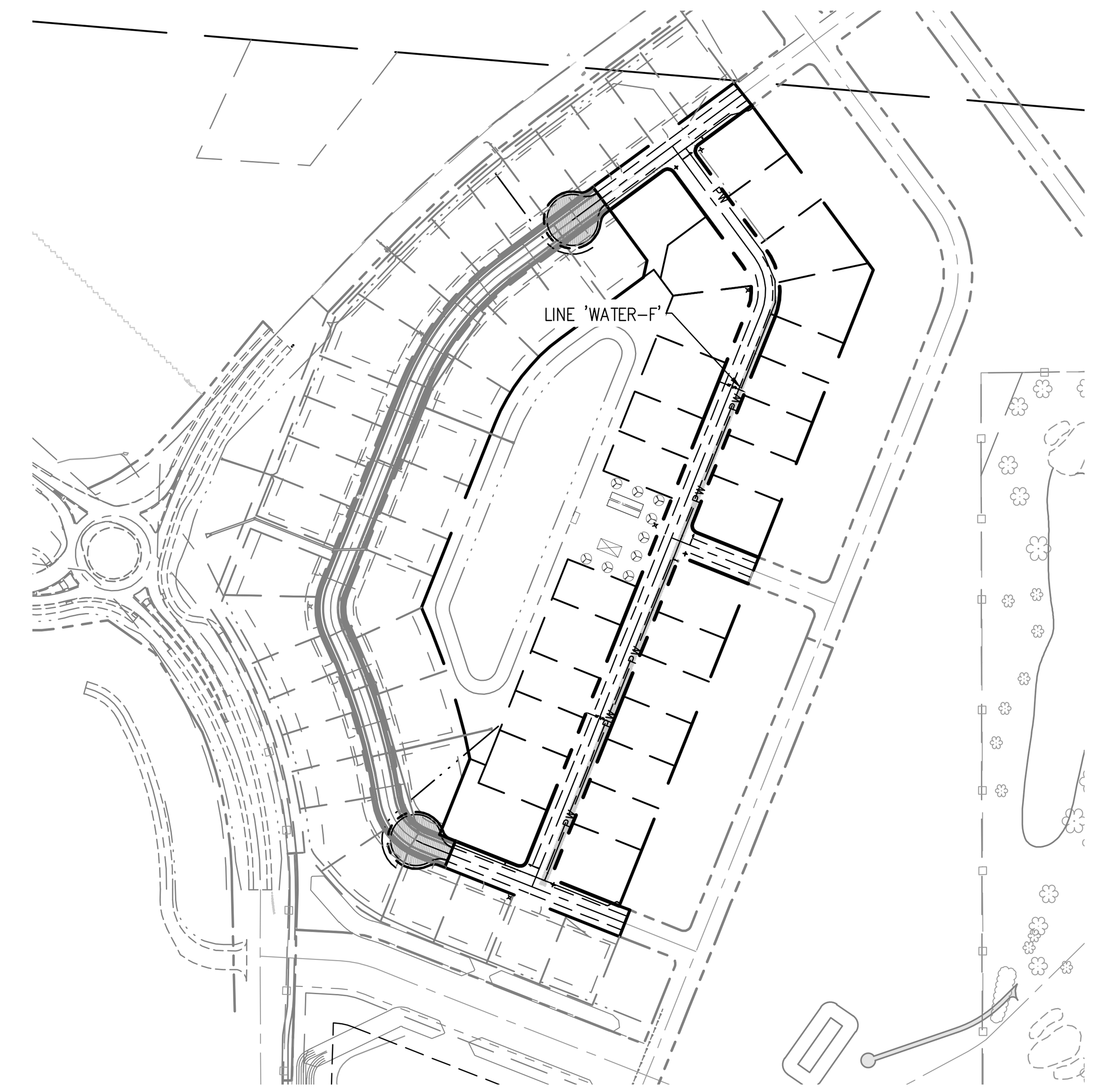
SHEET 901

DIRECTORY PATH : R:\Active\John Grimmer\Hillview CC Property\Old Town PUD Modifications\Design\CAD\PLANS\CONSTRUCTION PLANS SEC 3 SPLIT
FILENAME : 901 WATER MAIN PLAN & PROFILE.dwg
DATE/USER : 11/2/2022 11:54 AM / Lcox







KEYMAP

NO SCALE

Know what's **below**. Call before you dig.

"IT'S THE LAW"

CALL 2 WORKING DAYS BEFORE YOU DIG

1-800-382-5544 or 811

CALL TOLL FREE

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40 0 40 80

SCALE: 1" = 40'

NOTE:
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DIRECTORY PATH : R:\Active\John Grimmer\Hillview CC Property\Old Town PUD Modifications\Design\CAD\PLANS\CONSTRUCTION PLANS SEC 3 SPLIT
FILENAME : 902 WATER MAIN PLAN & PROFILE.dwg
DATE/USER : 11/3/2022 11:54 AM / Lcox

CROSSROAD ENGINEERS, PC
Transportation & Development Consultants
115 N. 17th AVENUE, BEECH GROVE, IN 46107 (317) 780-1555

SHEET 902

WATER MAIN PLAN AND PROFILE

WINDSOR AT HILLVIEW - SECTION 3

JOB No.	.	DRAWN	KLF/LMC/DEP
		CHECKED	TEN
DATE	NOVEMBER 3, 2022	DESIGNED	DJM
		APPR.	GJI

GREGORY J. ILKO
REGISTERED
No. 10300059
STATE OF INDIANA
PROFESSIONAL ENGINEER

PRELIMINARY
NOT FOR CONSTRUCTION

[illegible]

NO.	DATE	REVISIONS	BY	APPR.
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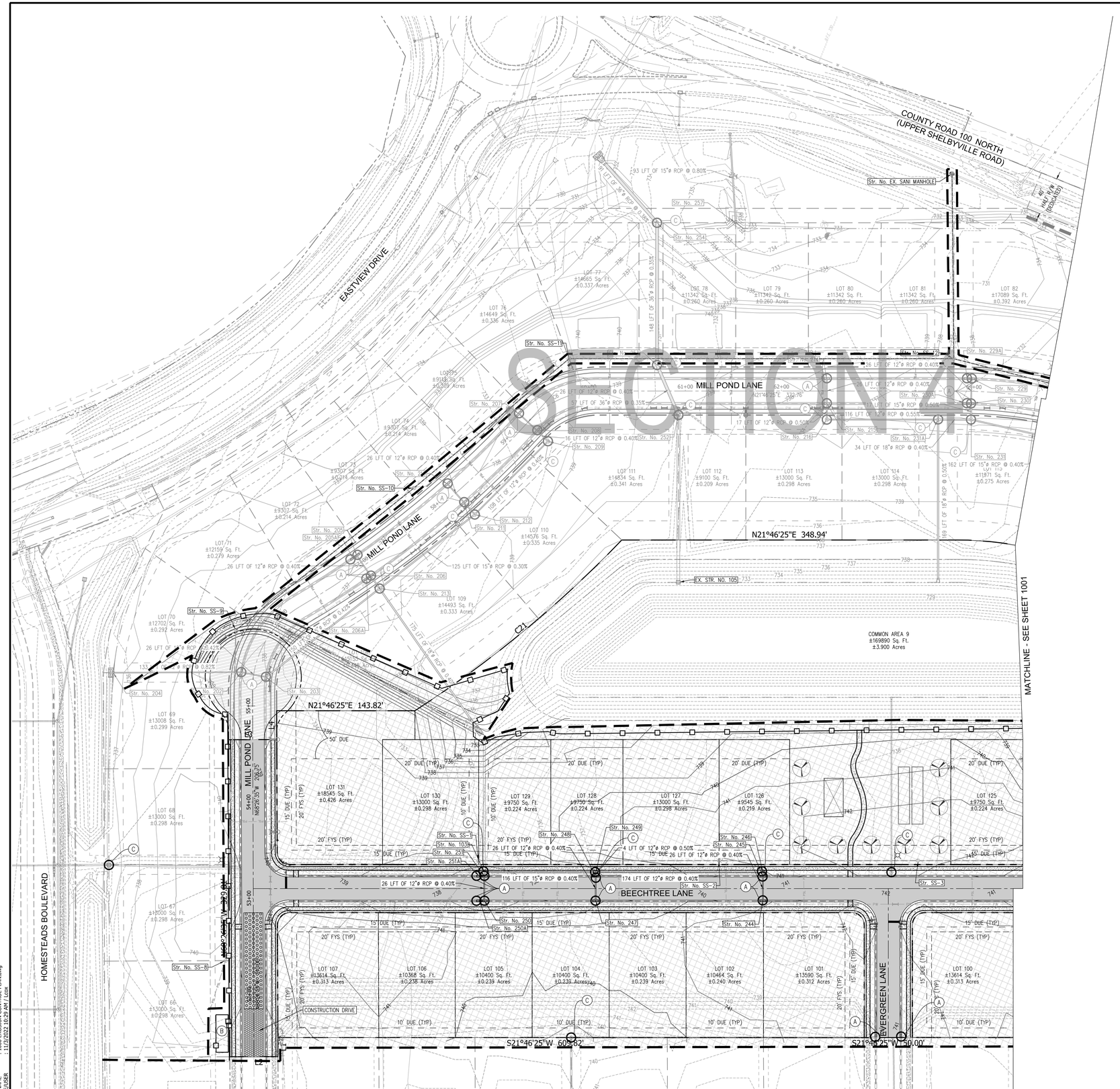
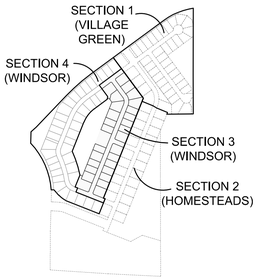
SHEET 902

EROSION CONTROL PLAN

WINDSOR AT HILLVIEW - SECTION 3





KEYMAP
NOT TO SCALE

Indiana811
Know what's below. Call before you dig.
"IT'S THE LAW"
CALL 2 WORKING DAYS BEFORE YOU DIG
1-800-382-5544 or 811
CALL TOLL FREE
PER INDIANA STATE LAW IS-69-1991, IT IS AGAINST THE LAW TO EXCAVATE WITHOUT NOTIFYING THE UNDERGROUND LOCATION SERVICE TWO (2) WORKING DAYS BEFORE COMMENCING WORK.

50 0 50 100
SCALE: 1" = 50'

SEE SHEET 1002 FOR EROSION CONTROL DETAILS AND NOTES

THESE PLANS ARE BASED UPON INFORMATION FROM AN ALTA/ACSM LAND TITLE SURVEY PERFORMED BY CKW LAND SURVEYING, INC. WITH WORK ORDER NO. 130100 AND DATED JUNE 7, 2013 AND SURVEY INFORMATION PROVIDED BY JERRY WIGGINS SURVEYING.

EROSION CONTROL NOTES

1. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED BY STATE, COUNTY, OR LOCAL OFFICIALS.
2. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED IN THE FIELD BY THE INSPECTOR.
3. CONSTRUCTION STAGING AREA (TO BE DETERMINED BY CONTRACTOR) SHALL INCLUDE THE NOI POSTING, PORT-O-LETS, TRASH CONTAINERS, AND FUELING TANKS.
4. A TRAINED INDIVIDUAL MUST PERFORM AN INSPECTION ONCE A WEEK AND AFTER EVERY ½" OR MORE RAIN EVENT. A LOG OF THE INSPECTION REPORTS MUST BE KEPT AND MADE AVAILABLE TO THE TOWN INSPECTOR UPON REQUEST.
5. ALL INDIVIDUAL LOT EROSION CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE LOT TEMPLATE DETAIL ON SHEET 901.

EROSION CONTROL LEGEND

- MULCHED SEEDING
- EROSION CONTROL BLANKET (NORTH AMERICAN GREEN SC-150 OR EQUAL) AND MULCHED SEEDING
- REVETMENT RIPRAP (SEE DETAIL – SHEET 901)
- CONSTRUCTION DRIVE (SEE DETAIL – SHEET 901)
- 800 EXISTING CONTOURS
- 800 PROPOSED CONTOURS
- SILT FENCE SLOPE CHECK (NUTEC 3 NWS-6 OR APPROVED EQUAL)
- CONSTRUCTION LIMITS
- (A) SILT SACK DETAIL (SEE DETAIL – SHEET 1001)
- (B) CONCRETE WASHOUT AREA (SEE DETAIL – SHEET 1001)
- (C) DROP FABRIC INLET PROTECTION (SEE DETAIL – SHEET 1001)

CROSSROAD ENGINEERS, PC
Transportation & Development Consultants
115 N. 17th AVENUE, BEECH GROVE, IN 46107 (317) 780-1555

SHEET 1000

JOB No. . | DRAWN KLF/JMC/DEP | CHECKED TEN | APPR. GJI
DATE NOVEMBER 3, 2022 | DESIGNED DJM

PRELIMINARY NOT FOR CONSTRUCTION
GREGORY J. ILKO REGISTERED PROFESSIONAL ENGINEER 10300059 STATE OF INDIANA

NO.	DATE	REVISIONS	BY	APPR.
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SHEET 1000

DIRECTORY PATH : R:\Active\John Grimmer\Willow CC Property\Old Town PUD Modifications\Design\CAD\PLANS\CONSTRUCTION PLANS SEC 3 SPLIT
FILENAME : 1000 EROSION CONTROL PLAN.dwg
DATE/USER : 11/3/2022 10:29 AM / Lcox

50 0 50 100

SCALE: 1" = 50'

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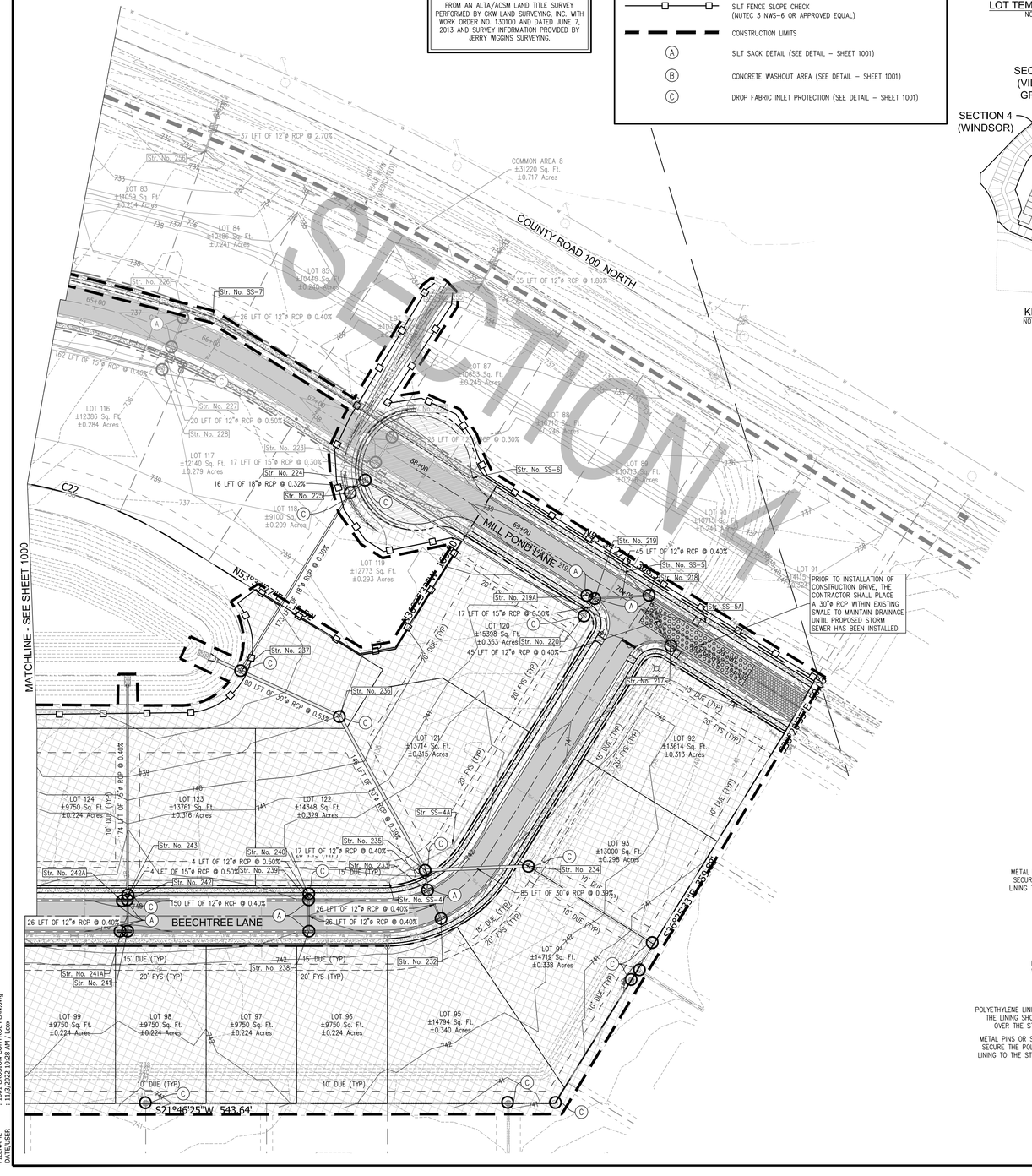
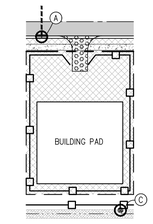
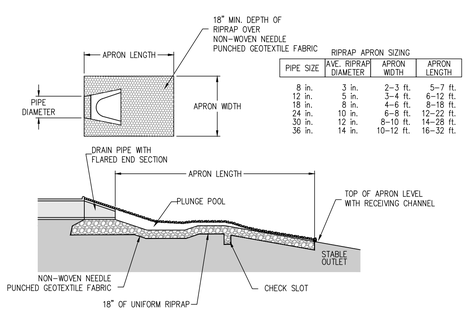


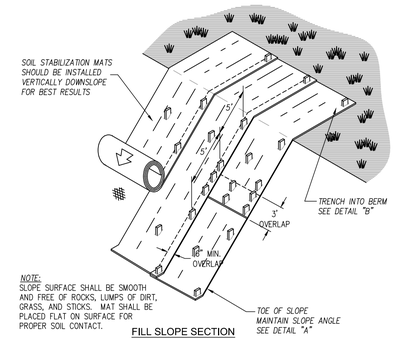


LOT TEMPLATE DETAIL
NOT TO SCALE



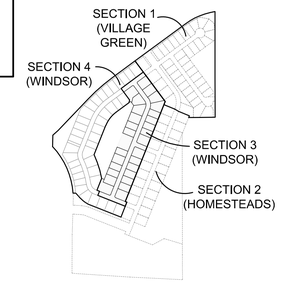
RIPRAP APRON SIZING			
PIPE SIZE	AVE. RIPRAP DIAMETER	APRON WIDTH	APRON LENGTH
8 in.	3 in.	2–3 ft.	5–7 ft.
12 in.	5 in.	3–4 ft.	6–12 ft.
18 in.	8 in.	4–6 ft.	8–18 ft.
24 in.	10 in.	6–8 ft.	12–22 ft.
30 in.	12 in.	8–10 ft.	14–28 ft.
36 in.	14 in.	10–12 ft.	16–32 ft.

END SECTION AND RIPRAP DETAILS
NOT TO SCALE

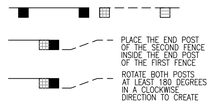


NOTE:
SLOPE SURFACE SHALL BE SMOOTH AND FREE OF ROCKS, LUMPS OF DIRT, GRASS, AND STICKS. MAT SHALL BE PLACED FLAT ON SURFACE FOR PROPER SOIL CONTACT.

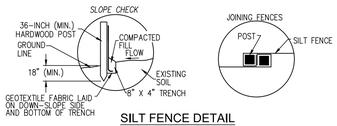
FILL SLOPE SECTION



KEYMAP
NOT TO SCALE



ATTACHING TWO SILT FENCES



SILT FENCE DETAIL
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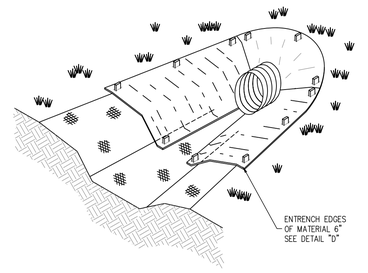
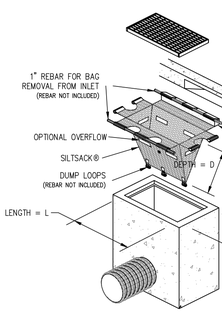
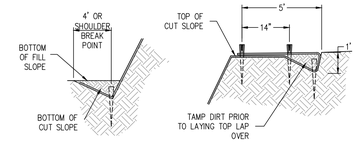


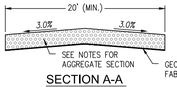


SILTSACK INLET FILTER DETAIL (A)
NOT TO SCALE

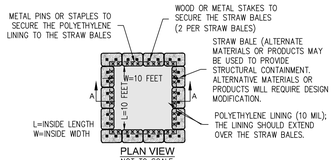


DETAIL "A" DETAIL "B"

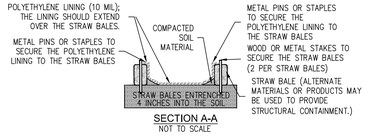
EROSION CONTROL BLANKET SLOPE INSTALLATION
NOT TO SCALE



SECTION A-A

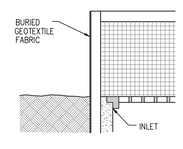


PLAN VIEW
NOT TO SCALE

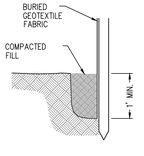


SECTION A-A
NOT TO SCALE

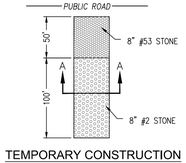
CONCRETE WASHOUT DETAIL (B)
NOT TO SCALE



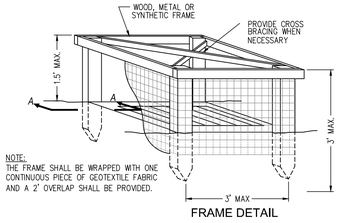
SECTION A-A



TRENCH DETAIL



TEMPORARY CONSTRUCTION ENTRANCE DETAIL
NOT TO SCALE



NOTE:
THE FRAME SHALL BE WRAPPED WITH ONE CONTINUOUS PIECE OF GEOTEXTILE FABRIC AND A 2' OVERLAP SHALL BE PROVIDED.

FRAME DETAIL

FABRIC DROP INLET PROTECTION DETAIL (C)
NOT TO SCALE

DIRECTORY PATH : R:\Active\John Grimmer\Willview CC Property\Old Town PUD Modifications\Design\CAD\PLANS\CONSTRUCTION PLANS SEC 3 SPLIT
FILENAME : 1001 EROSION CONTROL PLAN.dwg
DATE/USER : 11/3/2022 10:28 AM / Lcox

CROSSROAD ENGINEERS, PC
Transportation & Development Consultants
115 N. 17th AVENUE, BEECH GROVE, IN 46107 (317) 780-1555

SHEET 1001

EROSION CONTROL PLAN

WINDSOR AT HILLVIEW - SECTION 3

JOB No.	.	DRAWN	KLF/LMC/DEP	CHECKED	TEN	APPR.	GJI
DATE	NOVEMBER 3, 2022	DESIGNED	DJM				

REGISTERED PROFESSIONAL ENGINEER GREGORY J. ILKO 10300059 STATE OF INDIANA

NO.	DATE	REVISIONS	BY	APPR.
1				
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SHEET 1001

EROSION CONTROL PLAN INDEX

PLAN ELEMENTS

A2 11 BY 17 INCH PLAT
The 11x17 inch Plat has been submitted to the respective Soils and Water Conservation District.

A3 PROJECT NARRATIVE
The project involves the construction of 66 residential lots, which constitutes Section Three (3) of the over 130 Lot Residential Subdivision. Section Three is located on the south side of Upper Shelbyville Road, east of Eastview Drive and north of Meadowbrook Lane. All roadways and sidewalks necessary for the development shall be constructed as part of the construction plans herein. A storm sewer system shall be utilized for stormwater collection, and will discharge to an existing wet detention pond located in the center of the site. The wet detention pond will treat for both stormwater quantity and quality requirements. Water, sanitary sewer, electric, gas and communication utilities shall serve the development as well. Construction is anticipated to begin in the in the Fall of 2018.
A4 VICINITY MAP
The Vicinity Map is located in the right half of the Erosion Control Details (this sheet).
Latitude N 39°29'25" Longitude W 86°01'50"

A5 LEGAL DESCRIPTION
The Legal Description of the project site is located in the lower right quadrant of the Erosion Control Details (this sheet).

A6 LOCATION OF ALL LOTS AND PROPOSED SITE IMPROVEMENTS
All pertinent lot information is included on the plan view of the Erosion Control Plan (Sheet 1000–1001). Anticipated utilities, and structures are depicted as well.

A7 HYDROLOGIC UNIT CODE
The Hydrologic Unit Code for the represented watershed of this project is: 05120204090050

A8 STATE AND/OR FEDERAL WATER QUALITY PERMITS
No State of Federal water quality permits are required for this project.

A9 STORMWATER DISCHARGE
Treated stormwater discharge shall leave the Section Three site via a 36"ø RCP.

A10 WETLANDS, LAKES AND WATER COURSES.
There are no potential wetland areas located within the project site, nor shall any potential wetland areas be disturbed as a result of construction.

A11 RECEIVING WATERS
The receiving water for this project is Hurricane Creek.

A12 POTENTIAL DISCHARGES TO GROUND WATER
There are no potential locations where stormwater may enter the groundwater.

A13 100 YEAR FLOOD PLAINS, FLOODWAYS AND FLOODWAY FRINGES
The property plots by scale as being in Zone "AE" & "X" of the Flood Insurance Rate Map (FIRM) for Johnson County, Indiana, Community Panel No. 18081C0232D, dated August 2, 2007 & Panel No. 18081C0231E, dated January 29, 2021. The accuracy of all flood hazard data shown on this project is subject to map scale uncertainty and to any other uncertainty in location of elevation on the recorded Flood Insurance Rate Map.

A14 POST–CONSTRUCTION PEAK DISCHARGE
Qpost Max. (10 year) = 50.06 cfs (inflow to detention pond) (Section Three)
Qpost Max. (10 year) = 1.69 cfs (outflow from Detention Pond) (Section Three)

A15 ADJACENT LANDUSE
The adjacent landuses are labeled on the Erosion Control Plan (Sheet 1000–1001).

A16 DISTURBED AREAS
The construction limits (boundary of disturbed area) are shown on the Erosion Control Plan (Sheet 1000–1001).

A17 EXISTING VEGETATIVE COVER
The existing site is largely cultivated field with some grass areas and an existing detention pond.

A18 SOILS MAP AND DESCRIPTIONS
The soils map and all pertinent soil type information are located on the upper right quadrant of the Erosion Control Details (this sheet).

A19 PROPOSED STORMWATER SYSTEMS
The proposed stormwater system sizes and dimensions are labeled on the Erosion Control Plan (Sheet 1000–1001).

A20 OFF–SITE CONSTRUCTION ACTIVITIES
No offsite activities will take place within this project.

A21 SOIL STOCKPILES, BORROW/DISPOSAL AREAS
Topsoil shall be stockpiled in a convenient location (as determined by the owner and/or contractor) within the construction site as shown on the Erosion Control Plan (Sheet 1000–1001).

A22 EXISTING SITE TOPOGRAPHY
Existing one–foot contours are shown on the Erosion Control Plan (Sheet 1000–1001).

A23 PROPOSED SITE TOPOGRAPHY
Proposed one–foot contours are shown on the Erosion Control Plan (Sheet 1000–1001).

STORMWATER POLLUTION PREVENTION - DURING CONSTRUCTION

B1 POTENTIAL POLLUTANT SOURCES ASSOCIATED WITH CONSTRUCTION ACTIVITIES
There is a potential for pollutants associated with construction machinery including diesel fuel, hydraulic fluid, engine oils and lubricants, antifreeze and other petroleum products. It is unavoidable for a small amount of these pollutants to contaminate soil in the grading and construction of the site. Sediment pollution from site disturbing activities shall be remedied by Erosion Control measures (see following sections).

B2 SEQUENCE OF STORMWATER QUALITY MEASURE IMPLEMENTATION
The Construction Sequence & Schedule of Erosion Control Measure Implementation is located in the upper half on the Erosion Control Details (this sheet).

B3 CONSTRUCTION ENTRANCE
The construction entrance shall be constructed near the southeast section of the project off of Mill Pond Lane. Specifications and details are located on the Erosion Control Details (this sheet).

B4 SEDIMENT CONTROL MEASURES FOR SHEET FLOW AREAS
Sediment Control measures for Sheet flow areas are shown on the Erosion Control Plan (Sheet 1000–1001). Specifications and details are located on the Erosion Control Details (Sheet 1002).

B5 SEDIMENT CONTROL MEASURES FOR CONCENTRATED FLOW AREAS
Sediment Control measures for concentrated flow areas are shown on the Erosion Control Plan (Sheet 1000–1001). Specifications and details are located on the Erosion Control Details (Sheet 1002).

B6 STORM SEWER INLET PROTECTION MEASURES
Storm sewer inlet protection measures are shown on the Erosion Control Plan (Sheet 1000–1001). Specifications and details are located on the Erosion Control Details (Sheet 1002).

B7 RUNOFF CONTROL MEASURES
Runoff control measures are shown on the Erosion Control Plan (Sheet 1000–1002). Specifications and details are located on the Erosion Control Details (Sheet 1002).

B8 STORMWATER OUTLET PROTECTION MEASURES
Stormwater outlet protection measures are shown on the Erosion Control Plan (Sheet 1000–1001). Specifications and details are located on the Erosion Control Details (Sheet 1002).

B9 GRADE STABILIZATION STRUCTURES
No grade stabilization structures are required for this project.

B10 LOCATION, DIMENSIONS, SPECIFICATIONS AND DETAILS OF EACH STORMWATER QUALITY MEASURE
The stormwater quality measure for this Section is the existing detention pond, it is shown on the Erosion Control Plan (Sheet 1000–1001).

B11 TEMPORARY SURFACE STABILIZATION
Temporary surface stabilization methods are shown on the Erosion Control Plan (Sheet 1000–1001) and detailed on the Erosion Control Details (Sheet 1002 and this sheet).

B12 PERMANENT SURFACE STABILIZATION
Permanent surface stabilization methods are shown on the Erosion Control Plan (Sheet 1000–1001) and detailed on the Erosion Control Details (Sheet 1002 and this sheet).

B13 MATERIAL HANDLING AND SPILL PREVENTION
Spill prevention shall be accomplished by utilizing spillguards for equipment fueling and servicing operations. Spillguards shall be 3'x3'x6" and shall be constructed of a material resistant petroleum products (including diesel fuel and oil). On–site fuel storage tanks shall have emergency storage capacity directly below the tank in case of rupture. Any hazardous material spillage shall be collected and/or cleaned immediately by a trained individual and disposed of in accordance with all federal, state and local regulations.
Indiana Department of Environmental Management
Office of Emergency Response (317) 233–7745, Toll Free (800) 233–7745
Franklin Fire Department (317) 736–3651
Additional Material Handling and Spill Prevention (this sheet)

B14 MONITORING AND MAINTENANCE GUIDELINES
Monitoring and Maintenance Guidelines are located in the middle on the Erosion Control Details (this sheet).

B15 EROSION & SEDIMENT CONTROL MEASURES FOR INDIVIDUAL BUILDING LOTS
Shall be complicated as shown on the Lot Template Detail on Sheets 1000–1001.

STORMWATER POLLUTION PREVENTION - POST CONSTRUCTION

C1 PROPOSED POLLUTANTS AND SOURCES ASSOCIATED WITH PROPOSED LAND USE
Potential pollutants sources and materials may include the following:
Automobiles – Pertoleum Products (e.g. gasoline, oil/grease, ATF, etc), Hydrocarbons, Antifreeze, Trace Metals, etc.
Stormwater Runoff – Sediment, nutrients and chemicals (e.g. fertilizers, pesticides, etc)
Trash Service – Trash and debris, chemicals
Pets – Pet waste/bacteria

C2 STORMWATER QUALITY MEASURE IMPLEMENTATION
Stormwater quality measures are implemented by construction of the site improvements.

C3 PROPOSED POST CONSTRUCTION STORMWATER QUALITY MEASURES
Post construction stormwater quality measures shall consist of an existing wet detention pond with outlet control structure for detention and water quality purposes.

C4 LOCATION, DIMENSIONS, SPECIFICATIONS AND DETAILS OF EACH STORMWATER QUALITY MEASURE
The stormwater quality measure for this Section of the development is the existing detention pond located in the center of the site.

C5 MAINTENANCE GUIDELINES OF POST CONSTRUCTION STORMWATER QUALITY MEASURES
The existing outlet control structure shall be inspected quarterly and after major rain events for any blockages. All obstructions and debris shall be removed upon inspection. All vegetated banks shall be maintained by mowing, removing trash and debris, and re–planting any eroded/non–vegetated areas as necessary. The pond depth shall be measured annually at the center of the pond to verify that the minimum normal pool depth is maintained.

MONITORING AND MAINTENANCE GUIDELINES

GRAVEL CONSTRUCTION DRIVE AND PARKING AREA:
A. Inspect weekly and after each storm event and log condition per IDEM.

TOPSOIL:
A. Inspect weekly until vegetation is established and log condition per IDEM.

TEMPORARY AND PERMANENT SEEDING:
A. Inspect periodically, especially after storm events, until the stand is successfully established.
B. Plan to add fertilizer the following growing season according to soil test recommendations.
C. Repair damaged, bare, or sparse areas by filling any gullies, re–fertilizing, over– or re–seeding, and mulching.
D. If plant cover is sparse or patchy, review the plant materials chosen, soil fertility, moisture condition, and mulching; repair the affected area either by over–seeding or by re–seeding and mulching after re–preparing the seed bed.
E. If vegetation fails to grow, consider soil testing to determine acidity or nutrient deficiency problems.
F. If additional fertilization is needed to get a satisfactory stand, do so according to soil test recommendations.
G. Reference the latest INDOT Specification.

MULCHING:
A. Inspect after storm events to check for movement of mulch or for erosion.
B. If washout, breakage, or erosion is present, repair the surface, then re–seed, re–mulch, and , if applicable, install new netting.
C. Continue inspections until vegetation is firmly established.
D. Reference the latest INDOT Specification.

EROSION CONTROL BLANKET:
A. During vegetative establishment, inspect after storm events for any erosion below the blanket.
B. If any area shows erosion, pull back that portion of the blanket covering it, add soil, re–seed the area, and re–lay and staple the blanket.
C. After vegetative establishment, check the treated area periodically.

SILT FENCE:
A. Inspect the silt fence periodically and after each storm event.
B. If fence fabric tears, starts to decompose, or in any way becomes ineffective, replace the affected portion immediately.
C. Remove deposited sediment when it reaches half the height of the fence at its lowest point or is causing the fabric to bulge.
D. Take care to avoid undermining the fence during clean out.
E. After the contributing drainage area has been stabilized, remove the fence and sediment deposits, bring the disturbed area to grade and stabilize.

RIPRAP:
A. Inspect periodically for displaced rock material, slumping, and erosion at edges, especially downstream or downslope.

FABRIC DROP INLET PROTECTION:
A. Inspect the fabric barrier after storm events, and make needed repairs immediately.
B. Remove sediment from the pool area to provide storage for the next storm. Avoid damaging or undercutting the fabric during sediment removal.
C. When the contributing drainage area has been stabilized, remove and properly dispose of all construction material and sediment, grade the area to the elevation of the top of the inlet, then stabilize.

SILT SACK INLET PROTECTION:
A. Inspect the silt sack inlet protection periodically and after each ½" storm event.
B. Remove deposited sediment when it reaches half the height of the filter at the lowest point.
C. Remove the Silt Sack Inlet Protection and sediment deposits after contributing drainage area is stabilized.

CONCRETE WASHOUT:
A. Concrete washout area shall be installed prior to any concrete placement on site.
B. Signs shall be placed at the construction entrance, at the washout area, and elsewhere as necessary to clearly indicate the location of the concrete washout area to operators of concrete trucks and pump rigs.
C. The concrete washout area shall be repaired and enlarged or cleaned out as necessary to maintain capacity for wasted concrete.
D. At the end of construction, all concrete shall be removed from the site and disposed of at an approved waste site.
E. When the concrete washout area is removed, the disturbed area shall be seeded and mulched or otherwise stabilized in a manner approved by the inspector.

CONSTRUCTION SEQUENCE & SCHEDULE OF EROSION CONTROL IMPLEMENTATION

1. Schedule a pre–construction meeting with Johnson County SWCD and City of Franklin Engineering Department 48 hours prior to start of earthwork.
2. Silt fence and all other erosion control measures shall be placed around existing structures and in ditches as shown in these plans before any land disturbing activities are started.
3. Construct temporary gravel entrance in accordance with the "INDIANA STORM WATER QUALITY MANUAL". All other erosion control measures shall be installed and constructed as shown at the beginning of the project.
4. Strip topsoil and stockpile as shown.
5. Rough grade site. Disturbed areas should be seeded immediately following rough grading. Areas that will not be disturbed again should be permanently seeded. No unvegetated areas should be exposed for more than seven days.
6. Place drainage structures. Erosion control measures shall be placed around proposed structures as soon as they are in place and until vegetation is secure.
7. Final grade site. All erosion control blankets shall be installed per manufacturers recommendations as soon as final grading is complete.
9. Final paving operations. Temporary erosion control measures shall remain in place until vegetation is secure.

GENERAL EROSION CONTROL REQUIREMENTS FOR COMPLIANCE WITH IDEM GENERAL PERMIT RULES FOR STORM WATER RUNOFF FROM CONSTRUCTION SITES

1. All Erosion Control practices shall be in accordance with the latest edition of the INDIANA STORM WATER QUALITY MANUAL.
2. The Erosion Control measures included in this plan shall be installed prior to initial land disturbance activities or as soon as practical. Sediment shall be prevented from discharging from the project site by installing and maintaining silt fence, sediment basins, etc. As shown on this plan. If shown on this plan, energy–dissipation devices or Erosion Control at the outfall of the storm sewer system shall be installed at the time of the construction of the outfall.
3. All on–site storm drain inlets shall be protected against sedimentation with silt sack inlet filters, filter fabric, or equivalent barriers as shown on this plan.
4. Except as prevented by inclement weather conditions or other circumstances beyond the control of the contractor/developer appropriate Erosion Control practices will be initiated within (7) seven days of the last land disturbing activity at the site. The site shall be stabilized by seeding, sodding, mulching, covering, or by other equivalent Erosion Control measures.
5. This Erosion Control plan shall be implemented on all disturbed areas within the construction site. All measures involving Erosion Control practices shall be installed under the guidance of a qualified person experienced in Erosion Control and following the plans and specifications included herein.
6. During the period of construction activity, all sediment basins and other Erosion Control measures shall be maintained by the contractor. At the completion of construction, the contractor shall coordinate the transfer of required maintenance responsibilities with the owner.
7. Public or private roadways shall be kept cleared of accumulated sediment. Bulk clearing of accumulated sediment shall not include flushing the area with water. Cleared sediment shall be returned to the point of likely origin or other suitable location.
8. The contractor shall control wastes, garbage, debris, wastewater, and other substances on the site in such a way that they shall not be transported from the site by the action of winds, storm water runoff, or other forces. Proper disposal or management of all wastes and unused building materials appropriate to the nature of the waste or material is required.
9. Additional Erosion Control measures may be required by state or county agencies.

ADDITIONAL MATERIAL HANDLING AND SPILL PREVENTION PLAN

A. Purpose
The purpose of this plan is two fold:
1. To help protect the health and safety of those working on the site as well as the environment.
2. Preventing the contamination of storm water runoff. Pollutants generated onsite may include gasoline, diesel fuel, oils, grease, paints, pesticides, nutrients, concrete washout, soil, solvents, paper, plastic, Styrofoam, metals, glass and other forms of liquid or solid wastes.

This plan outlines procedures to help prevent health and safety issues, contamination of storm water by onsite pollutants, help prevent fuel and chemical spills and provide a response procedure should a spill occur.

B. Prevention and Readiness
1. The contractor or responsible party will prepare a contact list in the event of a spill on the site. The contact list will have names and contact numbers. The contact list will specify first responders and a chain of command. Include information on what circumstances require the initiation of the contact list and chain of command.
2. The contractor/owner shall maintain a list of qualified contractors, Vac–trucks, tank pumpers and other equipment or businesses qualified to do clean–up operations. Absorbent materials and supplies need to be available onsite in sufficient quantities to address minor spills. All employees need to be educated on the proper application of the absorbent materials.
3. All maintenance and equipment operators must be aware and trained for prevention of spills. A continuing education program is required for new employees and emphasizing the importance to all employees.
4. All materials used in the course of a cleanup will be disposed in a manor approved by Indiana Department of Environmental Management.
5. Using water to flush spilled material will not be permitted unless authorized by a state, federal, or local agency. Tarps can be used to cover spilled material during rain events.

C. Spill Response
Minor – Small spills that typically involve oil gasoline, paint, hydraulic fluid etc. Minor spills can be controlled by the first responder at the discovery of the spill.
- Contain spill to prevent material from entering storm or ground water. Do not flush with water or bury.
- Use absorbent material to clean–up spill material and any subsequently contaminated soil and dispose of properly.

Semi–significant Spills – Approximately ten gallons or less of pollutant with no contamination of ground or surface waters. Minor spills can be generally controlled by the first responder with help from other site personnel. This response may require other operations to stop to make sure the spill is quickly and safely addressed. At the discovery of the spill:
- Contain spill to prevent material from entering storm or ground water. Do not flush with water or bury.
- Use absorbent material to clean–up spills and dispose of properly. Spills on impervious surfaces should be contained with a dry absorbent. Spills on clayey soils should be contained by constructing an earthen dike and should be disposed of as soon as possible to prevent migration deeper into the soil and groundwater. Dispose of contaminated soils or absorbents properly.
- Contact 911 if this spill could be a safety issue.
- Contact supervisors and designated inspectors immediately
- Contaminated solids to be removed to an approved landfill.

Major or Hazardous Spills – More than ten gallons, there is the potential for death, injury or illness to humans or animals or has the potential for surface or groundwater pollution.
- Control or contain the spill without risking bodily harm. Temporarily plug storm drains if possible to prevent migration of the spill into the stormwater system.
- Immediately contact the local Fire Department at 911 to report any hazard material spill.
- Contact supervisors and designated inspectors immediately. Other county or municipal officials (list as needed) responsible for storm water facilities should be contacted as well. The contractor is responsible for having these contact numbers available at the job site. A written report should be submitted to the owner as soon as possible.
- As soon as possible but within 2 hours of discovery, contact the Department of Environmental Management,
  Office of Emergency Response 1–888–233–7745. The following information should be noted for future reports to IDEM or the National Response Center.
  - o Name, address and phone number of person making the spill report
  - o The location of the spill
  - o The time of the spill
  - o Identification of the spilled substance
  - o Approximate quantity of the substance that has been spilled or may be further spilled
  - o The duration and source of the spill
  - o Name and location of the damaged waters
  - o Name of spill response organization
  - o What measures were taken in the spill response
  - o Other information that may be significant

Additional regulation or requirements may be present. A spill response professional should be consulted to make sure all appropriate and required steps have been taken. Contaminated solids should only be removed from the site after approval is given by Emergency Response.

D. The following procedures and practices will help prevent unnecessary spills

I. Vehicle and Equipment Fueling

Description and Purpose:
- Vehicle equipment fueling procedures and practices are designed to prevent fuel spills and leaks, and reduce or eliminate contamination of stormwater. This can be accomplished by using offsite facilities, fueling in designated areas only, enclosing or covering stored fuel, implementing spill controls, and training employees and subcontractors in proper fueling procedures.

Limitations:
- Onsite vehicle and equipment fueling should only be used where it is impractical to send vehicles and equipment offsite for fueling.

Implementation:
- Use offsite fueling stations as much as possible. These businesses are better equipped to handle fuel and spills properly. Performing this work offsite can also be economical by eliminating the need for a separate fueling area at a site.
- Discourage "topping–off" of fuel tanks.
- Absorbent spill cleanup materials and spill kits should be available in fueling areas and on fueling trucks, and should be disposed of properly after use.
- Drip pans or absorbent pads should be used during vehicle and equipment fueling, unless the fueling is performed over an impermeable surface in a dedicated fueling area.
- Use absorbent materials on small spills. Do not hose down or bury the spill. Remove the absorbent materials promptly and dispose of properly.
- Avoid mobile fueling of mobile construction equipment around the site; rather, transport the equipment to designated fueling areas.
- Train employees and subcontractors in proper fueling and cleanup procedures.
- Dedicated fueling areas should be protected from stormwater run–on and runoff, and should be located at least 50 feet away from the downstream drainage facilities and watercourses. Fueling must be performed on level–grade areas.
- Protect fueling areas with berms and dikes to prevent run–on, runoff, and to contain spills.
- Nozzles used in vehicle and equipment fueling should be equipped with an automatic shutoff to control drips. Fueling operations should not be left unattended.
- Federal, state, and local requirements should be observed for any stationary above ground storage tanks.

Inspection and Maintenance
- Vehicles and equipment should be inspected each day of use for leaks. Leaks should be repaired immediately or problem vehicles or equipment should be removed from the project site.
- Keep ample supplies of spill cleanup materials onsite.
- Immediately clean up spills and properly dispose of contaminated soils.

II. Solid Waste Management

Description of Purpose:
- Solid waste management procedures and practices are designed to prevent or reduce the discharge of pollutants to stormwater from solid or construction waste by providing designated waste collection areas and containers, arranging for regular disposal, and training employees and subcontractors.

Suitable Applications:
This BMP is suitable for construction sites where the following wastes are generated or stored:

- Solid waste generated from trees and shrubs removed during land clearing, demolition of existing structures (rubble), and building construction.
- Packaging materials including wood, paper, and plastic.
- Scrap or surplus building materials including scrap metals, rubber, plastic, glass pieces, and masonry products.
- Domestic wastes including food containers such as beverage cans, coffee cups, paper bags, plastic wrappers, and cigarettes,
- Construction waste including brick, mortar, timber, steel and metal scraps, pipe and electrical cuttings, non–hazardous equipment parts. Styrofoam and other materials send transport and package construction materials.

Implementation:
The following steps will help keep a clean site and reduce stormwater pollution:
- Select designated waste collection areas onsite.
- Inform trash–hauling contractors that you will accept only watertight dumpsters for onsite use.
- Inspect dumpsters for leaks and repair any dumpster that is not watertight.
- Provide an adequate number of containers with lids or covers that can be placed over the container to keep rain out or to prevent loss of wastes when it is windy.
- Plan for additional containers and more frequent pickup during the demolition phase of construction.
- Collect site trash daily, especially during rainy and windy conditions.
- Remove this solid waste promptly since erosion and sediment control devices tend to collect litter.
- Make sure that toxic liquid wastes (used oils, solvents, and paints) and chemicals (acid, pesticides, additives, curing compounds) are not disposed of in dumpsters designed for construction debris.
- Do not hose out dumpsters on the construction site. Leave dumpster cleaning to the trash hauling contractor.
- Arrange for regular waste collection before containers overflow.
- Clean up immediately if a container does spill.
- Make sure that construction waste is collected, removed, and disposed of only at authorized disposal areas. Solid waste storage areas should be located in areas prone to flooding or ponding.
- Locate solid waste dumpster a minimum of 50' away from storm water inlets or other drainage facilities.
- Locate dumpster on stone or earth to minimize the potential for spills or leaks to drain immediately into a drainage facility.

Inspection and Maintenance:
- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly to verify continued BMP implementation.
- Inspect BMPs subject to non–stormwater discharge daily while non–stormwater discharges occur.
- Inspect construction waste are regularly.
- Arrange for regular waste collection.

III. Concrete Washout

The following steps will help reduce stormwater pollution from concrete wastes:
- Discuss the concrete management techniques described in the BMP (such as handling of concrete waste and washout) with the reddy–mix concrete supplier before any deliveries are made.
- Incorporate requirements for concrete waste management into material supplier and subcontractors' agreements.
- Store dry and wet materials under cover, away from drainage areas.
- Avoid mixing excess amounts of fresh concrete.
- Perform washout of concrete trucks offsite or in designed areas only.
- Do not wash concrete trucks into storm drains open ditches, streets, or streams.
- Do no allow excess concrete to be dumped onsite, except in designed areas.

For onsite washout:
- Locate washout areas at least 50 feet from storm drains, open ditches, or water bodies.
- Do not allow runoff from this area by constructing a temporary pit or bermed area large enough for liquid and solid waste.
- Wash out wastes into the temporary pit where the concrete can set, be broken up, and then disposed properly.
- Avoid creating runoff by drinking water to a bermed or level area when washing concrete to remove fine particles and expose the aggregate.
- Do not wash sweepings form exposed aggregate concrete into the street or storm drain. Collect and return sweepings to aggregate base stockpile or dispose in the trash.

IV. Vehicle Maintenance Areas
Purpose– To prevent spills during the normal maintenance of construction machinery.

Implementation– Where and when feasible, maintenance shall be preformed offsite in covered facility with an impervious floor.
- Use a dedicated site for machinery maintenance
- Site the maintenance area at least 50 feet from storm water inlets or water bodies
- Maintain clean up materials close at hand. Utilize drip pans and absorbent pads to prevent oils from reaching the soil surface.
- Inspect equipment daily for leaks or worn hoses. Repair or replace to prevent onsite spills
- Properly dispose of all fluids removed or spilled from machinery.

V. Fluids, paints, solvents and other chemicals storage and use

Purpose– To prevent spills during the use and storage of the materials

Implementation–
- Store materials in there original containers
- Maintain safety data sheets on all products
- Store materials in a weather proof/vandal resistant locker or building
- Keep materials away from flammable sources
- Provide and read instructions for the proper use and storage of all materials
- For bulk material stored onsite, provide diking or double containment in case of leaks or failures.
- No washout of solvent from paint supplies should be done near or into a storm water inlet or other drainage facility.

VI. Disposal of sediment laden water

Purpose– To prevent the purposeful discharge of sediment laden water into waters of the United States.

Implementation–
- The sediment and any other pollutant from all pumping or dewatering operations that discharge into storm sewers, wetlands, drainage ways or water bodies must be removed from the water before it's discharged.
- A suitable practice is needed at the discharge to allow the suspended solids to be removed from the water column. Slow moving water and time are needed components for an effective practice. Mechanical filters and chemical flocculants can do an excellent job of removing the fine materials.
- Sediment removal pumping bags may be used at the outlet of a pump. The bags must be sized appropriately for the amount of flow. The practice needs to be installed on erosion resistant surfaces. The outlet of the pumping bag must be erosion resistant to prevent additional sedimentation.
- Pumping operations that are moving clean water through a site are not required to have a pumping bag or similar device at the outlet. The point of discharge should be protected to prevent soil erosion.

PERMANENT SEED MIXTURES

SPECIES	SEEDING RATE LBS/ACRE	SUITABLE pH	SITE SUITABILITY DROUGHTY	DRAINED	WET
LEVEL AND SLOPING, OPEN AREAS					
TALL FESCUE	35	5.5 – 8.3	2	1	2
TALL FESCUE RED CLOVER **	25 5	5.5 – 8.3		1	
KENTUCKY BLUEGRASS CREEPING RED FESCUE	15 15	5.5 – 7.5	2	1	
STEEP BANKS AND CUTS					
TALL FESCUE KENTUCKY BLUEGRASS	15 25	5.8 – 7.5	2	1	2
TALL FESCUE EMERALD CROWNVETCH **	35 10	5.5 – 8.3	2	1	
LAWNS AND HIGH MAINTENANCE AREAS					
KENTUCKY BLUEGRASS CREEPING RED FESCUE	40 40	5.8 – 7.5	2	1	
PERENNIAL RYEGRASS (TURF TYPE)	170	5.0 – 7.5		1	
TALL FESCUE	170	5.5 – 8.3	2	1	2

1–PREFERRED 2–WILL TOLERATE ** – INOCULATE WITH SPECIFIC INOCULATES

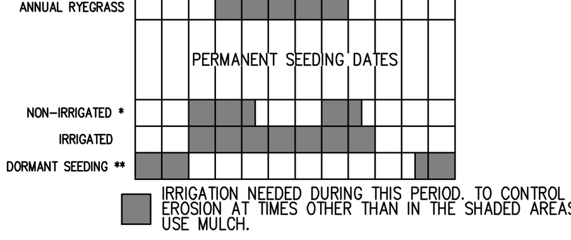
	SOIL CONDITION WET	NORM	DRY	SHADE TOLERANCE	CLOSE MOWING TO 2–3 1/2 INCHES	TRAMPING TOLERANCE	FERTILITY NEEDS	WINTER HARDINESS	FLOODING TOLERANCE (DAYS)	MATURE HEIGHT (INCHES)	EMERGENCE TIME (DAYS)	SALT TOLERANCE GEN.	SOIL	SPRAY
CREEPING RED FESCUE FESTUCA RUBRA	2	1	2	1	1	1	MED.	1	20–25	12–18	7–21			S
KENTUCKY BLUEGRASS POA PROTINSIS	2	1	2	1	1	1	MED.	1	25–35	12–18	10–20			MT
TALL FESCUE FESTUCA L ARUNDINACEA	2	1	1	1	1	1	LOW	1	24–35	24–36	5–14		T	
PERENNIAL RYEGRASS LOLIUM PERENNE	2	1	2	–	1	2	MED–HIGH	2	15–20	12–18	5–10		MT	
CROWNVETCH CORANILLA VARIA	–	1	1	2	–	–	LOW	1	5–10	24	14–21	T		
RED CLOVER TRIFOLIUM PRATENSE	–	1	–	2	–	–	MED.	1	7–10	18	5–10	S	S	

RANKING
1 GOOD
2 MEDIUM
– NOT TOLERANT

SALT TOLERANCE (TO BOTH SOIL SALTS AND SPRAY)
T – TOLERANCE
MT – MEDIUM TOLERANCE
S – SLIGHT TOLERANCE

SEEDBED PREPARATION
APPLY LIME TO RAISE THE pH TO THE LEVEL NEEDED FOR SPECIES BEING SEEDED. APPLY 23 LBS. OF 12–12–12 ANALYSIS FERTILIZER (OR EQUIVALENT) PER 1,000 SQ. FT. (APPROXIMATELY 1,000 LBS. PER ACRE) OR FERTILIZE ACCORDING TO TEST. APPLICATION OF 150 LBS. OF AMMONIUM NITRATE ON AREAS LOW IN ORGANIC MATTER AND FERTILITY WILL GREATLY ENHANCE VEGETATIVE GROWTH. WORK THE FERTILIZER AND LIME INTO THE SOIL A DEPTH OF 2 TO 3 INCHES WITH A HARROW, DISK, OR RAKE OPERATED ACROSS THE SLOPE AS MUCH AS POSSIBLE.
FERTILIZER AND LIME SHALL MEET REQUIREMENTS OF INDOT STANDARD SPECIFICATIONS 1995.
SEEDING
SELECT A SEED MIXTURE BASED ON PROJECTED USE OF THE AREA WHILE CONSIDERING BEST SEEDING DATES.

TEMPORARY SEEDING DATES



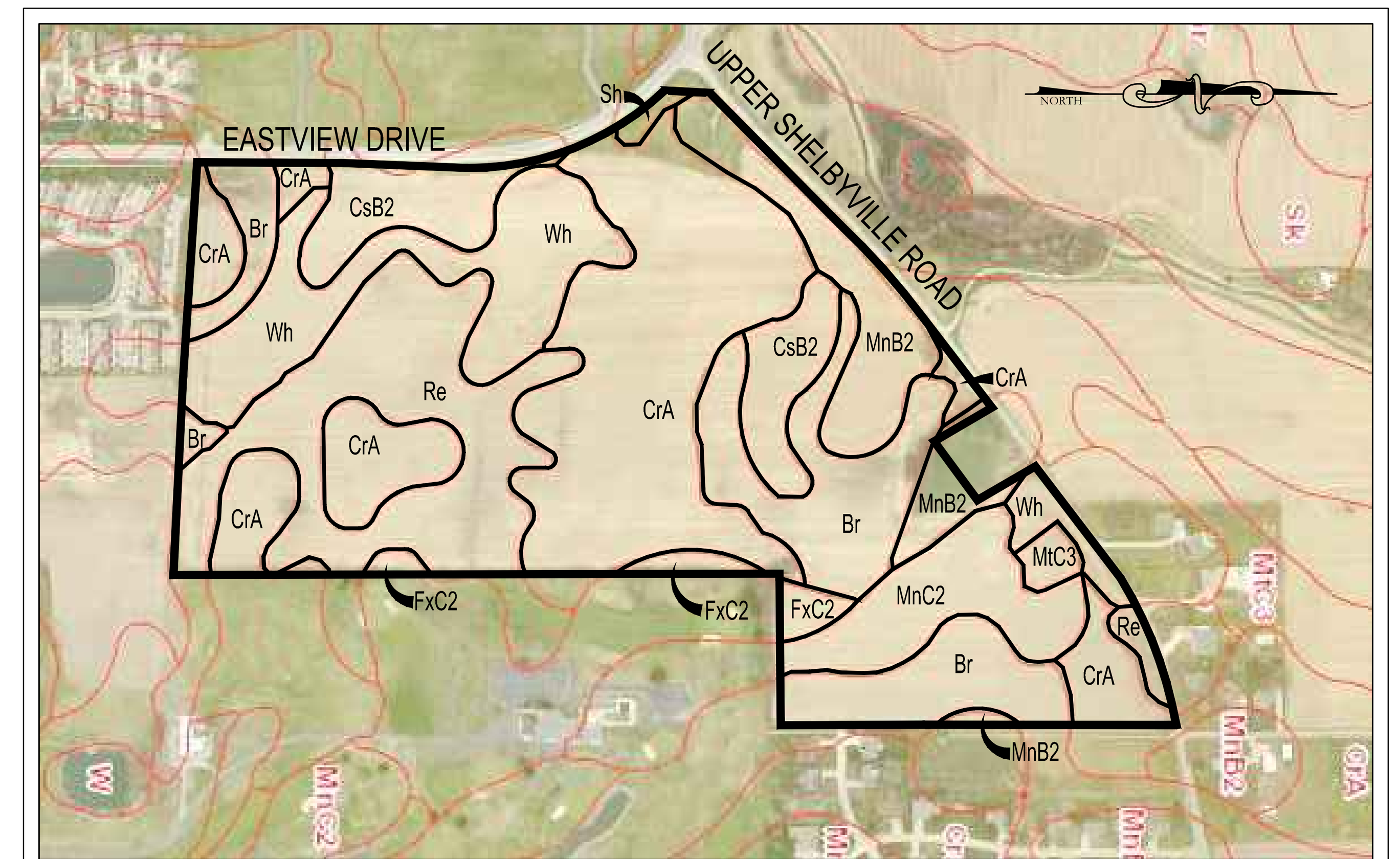
* –LATE SUMMER SEEDING DATES MAY BE EXTENDED 5 DAYS IF MULCH IS APPLIED.

** –INCREASE SEEDING APPLICATION BY 50%.

TEMPORARY SEEDINGS

KIND OF SEED	PER 1,000 SQ. FT.	PER ACRE	REMARKS
WHEAT OR RYE	3.5 LBS.	2 BU.	COVER SEED 1" TO 1 1/2" DEEP
SPRING OATS	2.3 LBS.	3 BU.	COVER SEED 1" DEEP
ANNUAL RYEGRASS	1.0 LBS.	40 LBS.	COVER SEED 1/4" DEEP *

* NOT NECESSARY WHERE MULCH IS APPLIED.



Johnson County, Indiana (IN081)

BROOKSTON SILTY CLAY LOAM (BR)
This nearly level soil is in depressions, on flats, and in narrow drainageways between better drained soils on broad, undulating plains. Slopes are 0 to 2 percent. Runoff is very slow. Wetness is the main limitation.

CROSBY SILT LOAM (CrA)
This nearly level soil is on broad plains, on ridge tops in rolling areas, or in low drainageways. Slopes are 0 to 2 percent. Runoff is slow. Wetness is the main limitation.

CROSBY-MIAMI SILT LOAMS, eroded (CsB2)
This gently sloping mapping unit is on broad, slightly undulating plains; on knolls of broad, nearly level plains; and at the heads of drainageways. Slopes are 2 to 4 percent. Runoff is medium. Moderate erosion is the main limitation.

FOX COMPLEX, eroded (FxC2)
This moderately sloping and strongly sloping mapping unit is on side slopes of drainageways, on steep breaks, and on side slopes of hummocky kames and eskers. Slopes are 6 to 15 percent. Runoff is medium. Moderate erosion is the main limitation.

MIAMI SILT LOAM (MnB2)
This gently sloping soil is along drainageways that cross areas of somewhat poorly drained Crosby soils. Slopes are 2 to 6 percent. Runoff is medium. Moderate erosion is the main limitation.

MIAMI SILT LOAM, eroded (MnC2)
This moderately sloping soils is on irregularly shaped knolls surrounded by gently sloping and nearly level soils; in long narrow bands around ridgetops; along drainageways leading to terraces or bottom land; and on undulating moraines. Slopes are 6 to 12 percent. Runoff is medium. Moderate erosion is the main limitation.

MIAMI SILT LOAM, severely eroded (MtC2)
This moderately sloping soils is on irregularly shaped knolls surrounded by gently sloping and nearly level soils; in long narrow bands around level soils on ridgetops; along drainageways of terraces and bottom lands; and on side slopes of undulating moraines. Slopes are 6 to 12 percent. Severely erosion is the main limitation.

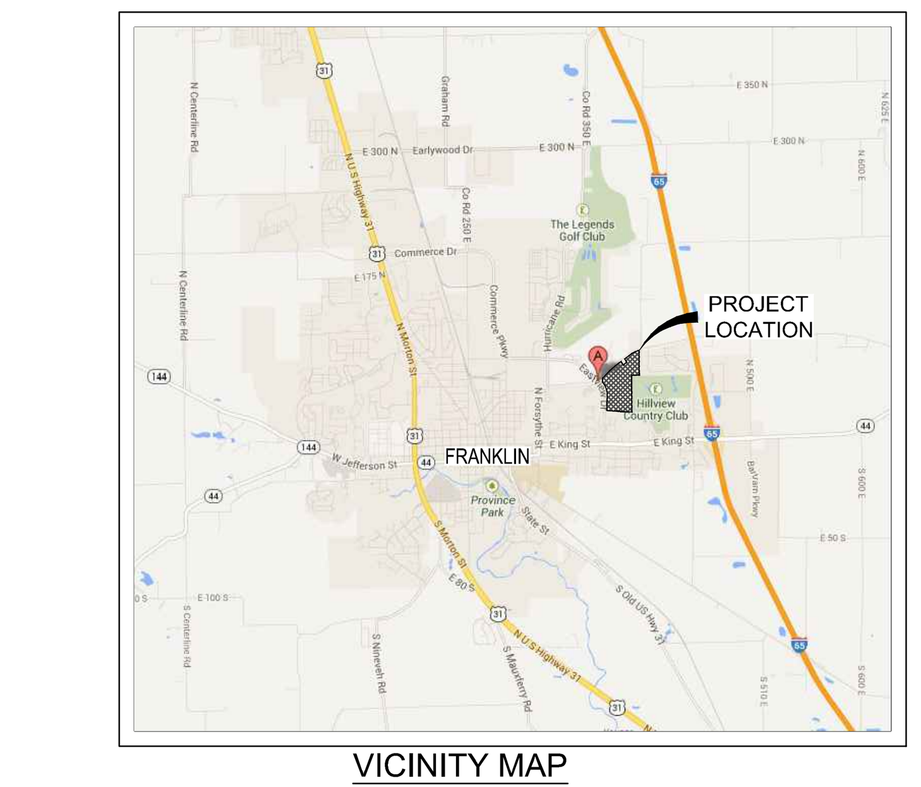
RENSSELAER CLAY LOAM (Re)
This nearly level soil is in slightly depression areas of broad outwash plains and in old glacial drainageways and lake basins. Slopes are 0 to 2 percent. Runoff is very slow or ponded. Wetness is the main limitation.

SHOALS SILT LOAM (Sh)
This nearly level soil is on narrow flood plains along meandering streams and in low–lying, weakly defined drainageways of large river bottom lands. Slopes are 0 to 2 percent. Runoff is slow. Flooding and Wetness is the main limitation.

WHITAKER SILT LOAM (Wh)
This nearly level soil is surrounded by very poorly drained Rensseler or Westland soils or is surrounded by or at toe slopes of well drained Martinsville soils on outwash plains and terraces and in old glacial drainageways. Slopes are 0 to 2 percent. Runoff is very slow. Wetness is the main limitation.

SOIL MAP AND DESCRIPTION
NOT TO SCALE

ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED BY STATE OR COUNTY OFFICIALS



VICINITY MAP
NOT TO SCALE

Indiana811
Know what's below. Call before you dig.
"IT'S THE LAW"
CALL 2 WORKING DAYS BEFORE YOU DIG
1-800-382-5544 or 811
CALL TOLL FREE
PER INDIANA STATE LAW IS–69–1991. IT IS AGAINST THE LAW TO EXCAVATE WITHOUT NOTIFYING THE UNDERGROUND LOCATION SERVICE TWO (2) WORKING DAYS BEFORE COMMENCING WORK.

LEGAL DESCRIPTION

A PART OF THE SOUTHEAST QUARTER OF SECTION 12, AND A PART OF THE NORTHEAST QUARTER OF SECTION 13, ALL IN TOWNSHIP 12 NORTH, RANGE 4 EAST OF THE SECOND PRINCIPAL MERIDIAN, IN JOHNSON COUNTY, INDIANA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT A STONE FOUND AT THE NORTHEAST CORNER OF THE NORTHEAST QUARTER OF THE SAID SECTION 13; THENCE SOUTH 00 DEGREES 07 MINUTES 53 SECONDS EAST ON AND ALONG THE EAST LINE THEREOF 432.04 FEET; THENCE SOUTH 89 DEGREES 23 MINUTES 00 SECONDS WEST 107.81 FEET TO AN IRON ROD FOUND AND TO A SOUTHEAST CORNER OF THE PLAT OF HOMESTEADS AT HILLVIEW–SECTION 1 MAJOR SUBDIVISION SECONDARY PLAT, WHICH IS RECORDED IN PLAT CABINET E SLIDE 170 IN THE OFFICE OF THE RECORDER OF JOHNSON COUNTY; THENCE ALONG SAID PLAT THE FOLLOWING TWO COURSES: 1) SOUTH 89 DEGREES 23 MINUTES 00 SECONDS WEST 295.42 FEET; 2) SOUTH 21 DEGREES 46 MINUTES 25 SECONDS WEST 195.52 FEET TO THE NORTHEAST CORNER OF THE PLAT OF HOMESTEADS AT HILLVIEW–SECTION 2 MAJOR SUBDIVISION SECONDARY PLAT RECORDED IN PLAT CABINET E SLIDE 239 IN SAID RECORDER'S OFFICE; THENCE ALONG BOTH PLATS THE FOLLOWING SEVEN COURSES: 1) SOUTH 21 DEGREES 46 MINUTES 25 SECONDS WEST 295.85 FEET; 2) NORTH 68 DEGREES 13 MINUTES 35 SECONDS WEST 130.00 FEET; 3) SOUTH 21 DEGREES 46 MINUTES 25 SECONDS WEST 82.38 FEET; 4) NORTH 68 DEGREES 13 MINUTES 35 SECONDS WEST 50.00 FEET; 5) NORTH 21 DEGREES 46 MINUTES 25 SECONDS EAST 37.00 FEET TO A NON–TANGENT CURVE; 6) NORTHWESTERLY 20.42 FEET ALONG ARC TO THE LEFT HAVING A RADIUS OF 130.00 FEET AND SUBTENDED BY A LONG CHORD HAVING A BEARING OF NORTH 23 DEGREES 13 MINUTES 35 SECONDS WEST 117.00 FEET TO THE POINT OF BEGINNING; THENCE CONTINUING ALONG SAID SECTION 2 PLAT THE FOLLOWING THREE COURSES: 1) SOUTH 21 DEGREES 46 MINUTES 25 SECONDS WEST 609.82 FEET; 2) SOUTH 68 DEGREES 26 MINUTES 35 SECONDS EAST 19.81 FEET; 3) SOUTH 21 DEGREES 33 MINUTES 25 SECONDS WEST 50.00 FEET; THENCE NORTH 68 DEGREES 26 MINUTES 35 SECONDS WEST 329.81 FEET; THENCE NORTH 21 DEGREES 33 MINUTES 25 SECONDS EAST 50.00 FEET; THENCE NORTH 68 DEGREES 26 MINUTES 35 SECONDS WEST 30.00 FEET; THENCE NORTH 21 DEGREES 46 MINUTES 25 SECONDS EAST 143.82 FEET TO A NON–TANGENT ARC; THENCE NORTHERLY ALONG AN ARC TO THE LEFT HAVING A RADIUS 1190.00 FEET AND SUBTENDED BY A LONG CHORD HAVING A BEARING OF NORTH 17 DEGREES 45 MINUTES 49 SECONDS WEST AND A LENGTH OF 278.99 FEET; THENCE NORTH 21 DEGREES 46 MINUTES 25 SECONDS EAST 348.94 FEET TO AN ARC; THENCE EASTERLY ALONG A TANGENT ARC TO THE RIGHT HAVING A RADIUS 345.00 FEET AND SUBTENDED BY A LONG CHORD HAVING A BEARING OF NORTH 37 DEGREES 40 MINUTES 26 SECONDS WEST AND A LENGTH OF 189.03 FEET; THENCE NORTH 53 DEGREES 34 MINUTES 27 SECONDS EAST 180.52 FEET; THENCE NORTH 12 DEGREES 9 MINUTES 52 SECONDS EAST 30.24 FEET; THENCE NORTH 36 DEGREES 25 MINUTES 33 SECONDS WEST 160.00 FEET; THENCE NORTH 53 DEGREES 34 MINUTES 27 SECONDS EAST 308.33 FEET TO A POINT ON SAID SECTION 1 PLAT; THENCE ALONG SAID SECTION 1 PLAT THE FOLLOWING FOUR COURSES: 1) SOUTH 38 DEGREES 20 MINUTES 35 SECONDS EAST 50.03 FEET; 2) SOUTH 36 DEGREES 25 MINUTES 33 SECONDS EAST 359.88 FEET; 3) SOUTH 21 DEGREES 46 MINUTES 25 SECONDS WEST 543.64 FEET; 4) SOUTH 21 DEGREES 46 MINUTES 25 SECONDS WEST 50.00 FEET TO THE POINT OF BEGINNING.

CONTAINING 14.140 ACRES, MORE OR LESS

CROSSROAD ENGINEERS, PC
Transportation & Development Consultants
115 N. 17th AVENUE, BEECH GROVE, IN 46107 (317) 780–1555

SHEET 1002

EROSION CONTROL DETAILS

WINDSOR AT HILLVIEW - SECTION 3

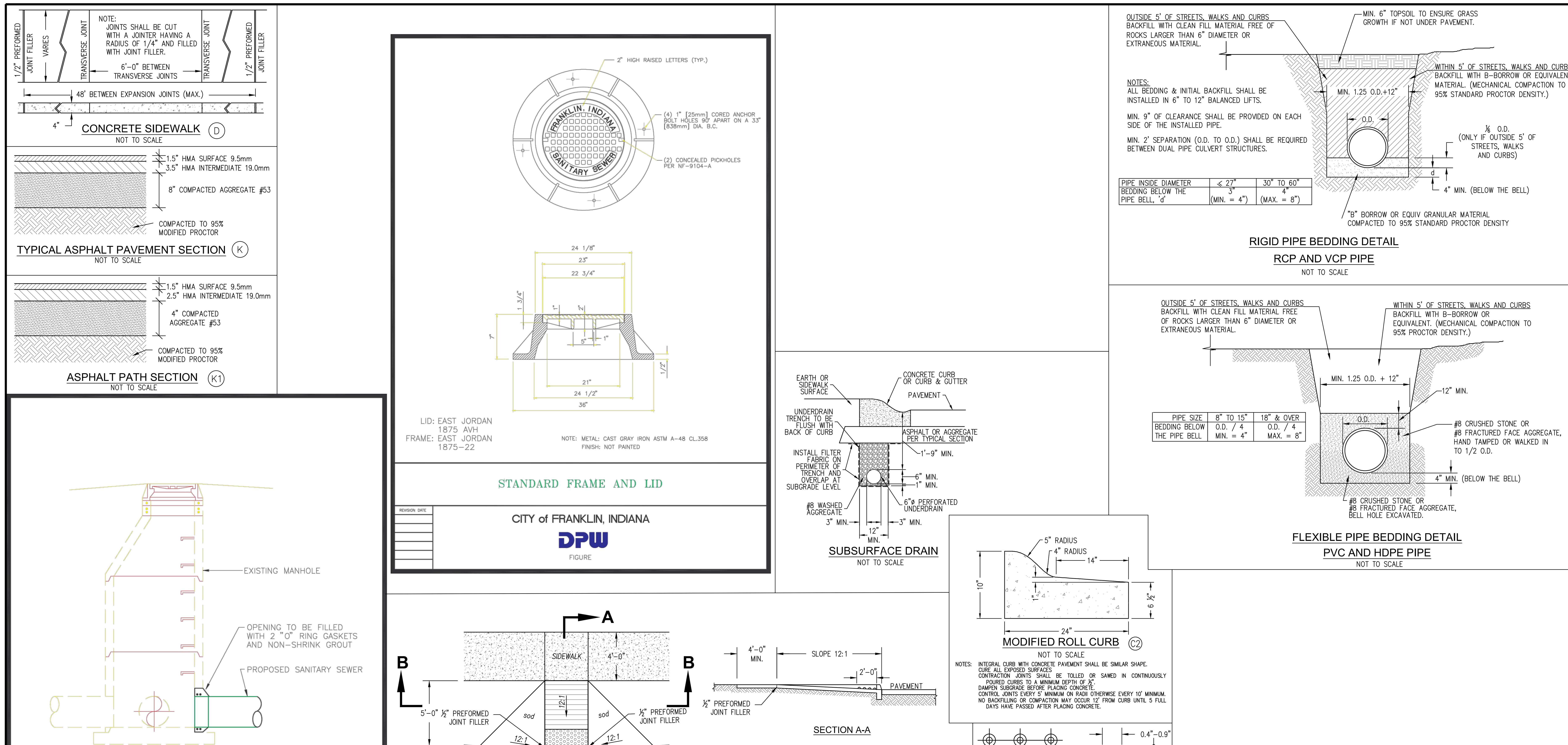
JOB No.	.	DATE	NOVEMBER 3, 2022
DRAWN	KLF/LMC/DEP	DESIGNED	DJM
CHECKED	TEN	APPR.	GJI

GREGORY J. ILKO
REGISTERED
No. 10300059
STATE OF INDIANA
PROFESSIONAL ENGINEER

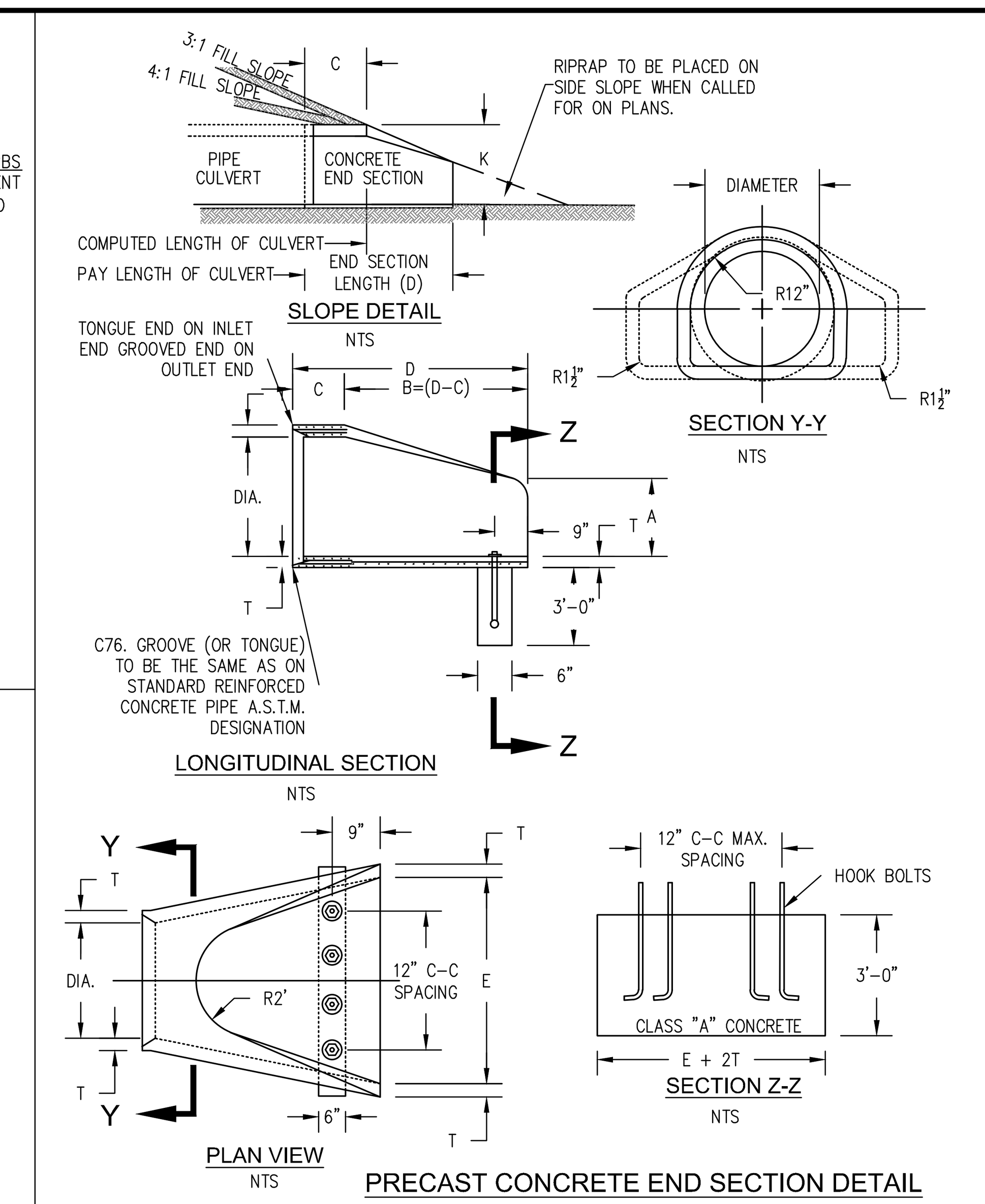
PRELIMINARY
NOT FOR CONSTRUCTION

NO.	DATE	REVISIONS	BY	APPR.
1				
2				
3				
4				
5				
6				
7				
8				
9				

SHEET 1002



NOTE: JOINTS SHALL BE CUT WITH A JOINTER HAVING A RADIUS OF 1/4" AND FILLED WITH JOINT FILLER.
6'-0" BETWEEN TRANSVERSE JOINTS
48' BETWEEN EXPANSION JOINTS (MAX.)
CONCRETE SIDEWALK (D)
NOT TO SCALE
1.5" HMA SURFACE 9.5mm
3.5" HMA INTERMEDIATE 19.0mm
8" COMPACTED AGGREGATE #53
COMPACTED TO 95% MODIFIED PROCTOR
TYPICAL ASPHALT PAVEMENT SECTION (K)
NOT TO SCALE
1.5" HMA SURFACE 9.5mm
2.5" HMA INTERMEDIATE 19.0mm
4" COMPACTED AGGREGATE #53
COMPACTED TO 95% MODIFIED PROCTOR
ASPHALT PATH SECTION (K1)
NOT TO SCALE
LID: EAST JORDAN 1875 AVH
FRAME: EAST JORDAN 1875-22
NOTE: METAL: CAST GRAY IRON ASTM A-48 CL.35B
FINISH: NOT PAINTED
STANDARD FRAME AND LID
CITY of FRANKLIN, INDIANA
DPW
EXISTING MANHOLE
OPENING TO BE FILLED WITH 2 "O" RING GASKETS AND NON-SHRINK GROUT
PROPOSED SANITARY SEWER
SUBSURFACE DRAIN
NOT TO SCALE
HANDICAP RAMP TYPE C (F)
NOT TO SCALE
SECTION A-A
SECTION B-B
MODIFIED ROLL CURB (C2)
NOT TO SCALE
TRUNCATED DOMES USED IN DETECTABLE WARNINGS
NOT TO SCALE
RIGID PIPE BEDDING DETAIL
RCP AND VCP PIPE
NOT TO SCALE
FLEXIBLE PIPE BEDDING DETAIL
PVC AND HDPE PIPE
NOT TO SCALE

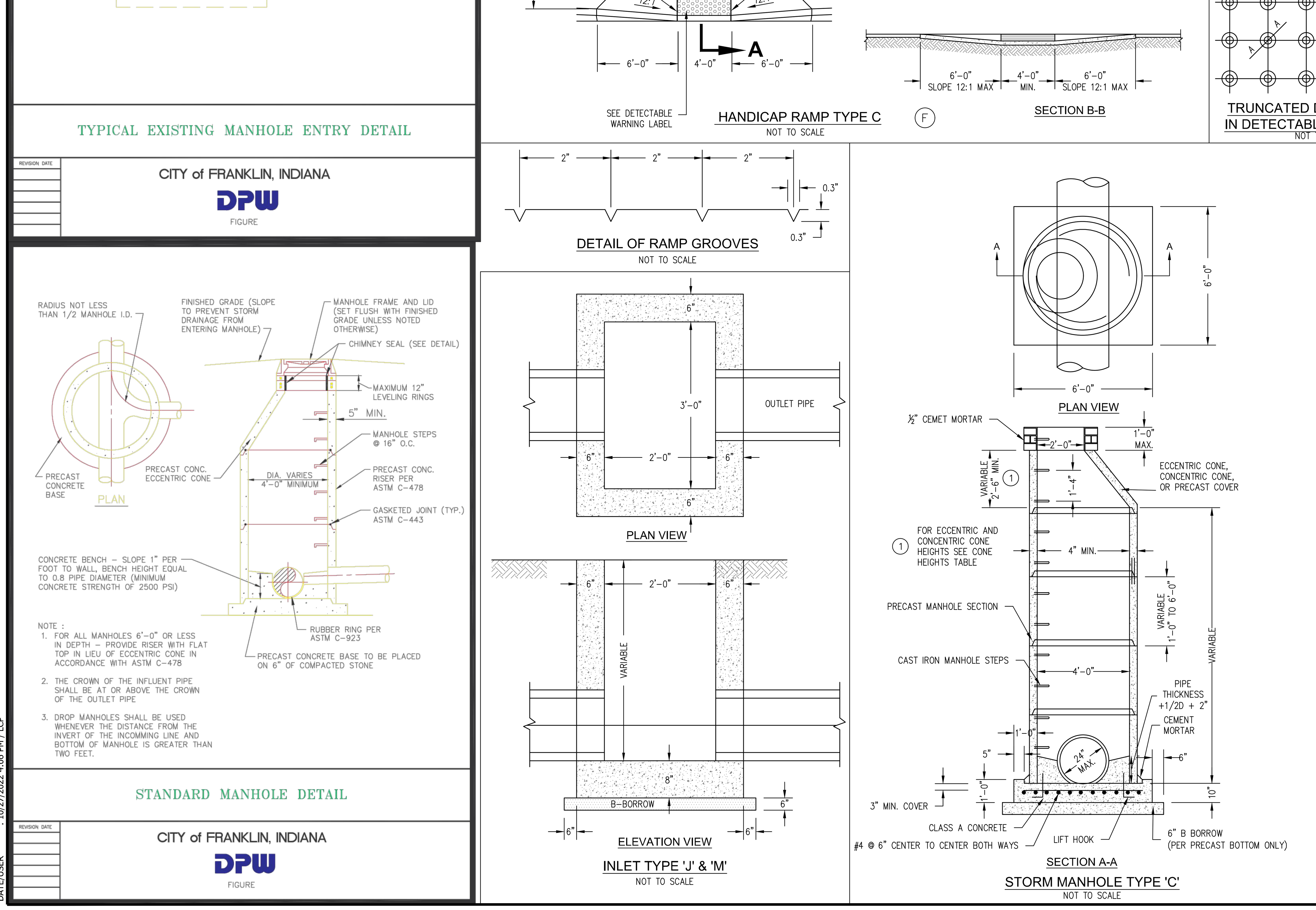


RIPRAP TO BE PLACED ON SIDE SLOPE WHEN CALLED FOR ON PLANS.
SLOPE DETAIL
NTS
SECTION Y-Y
NTS
LONGITUDINAL SECTION
NTS
C76. GROOVE (OR TONGUE) TO BE THE SAME AS ON STANDARD REINFORCED CONCRETE PIPE A.S.T.M. DESIGNATION
PLAN VIEW
NTS
SECTION Z-Z
NTS
PRECAST CONCRETE END SECTION DETAIL

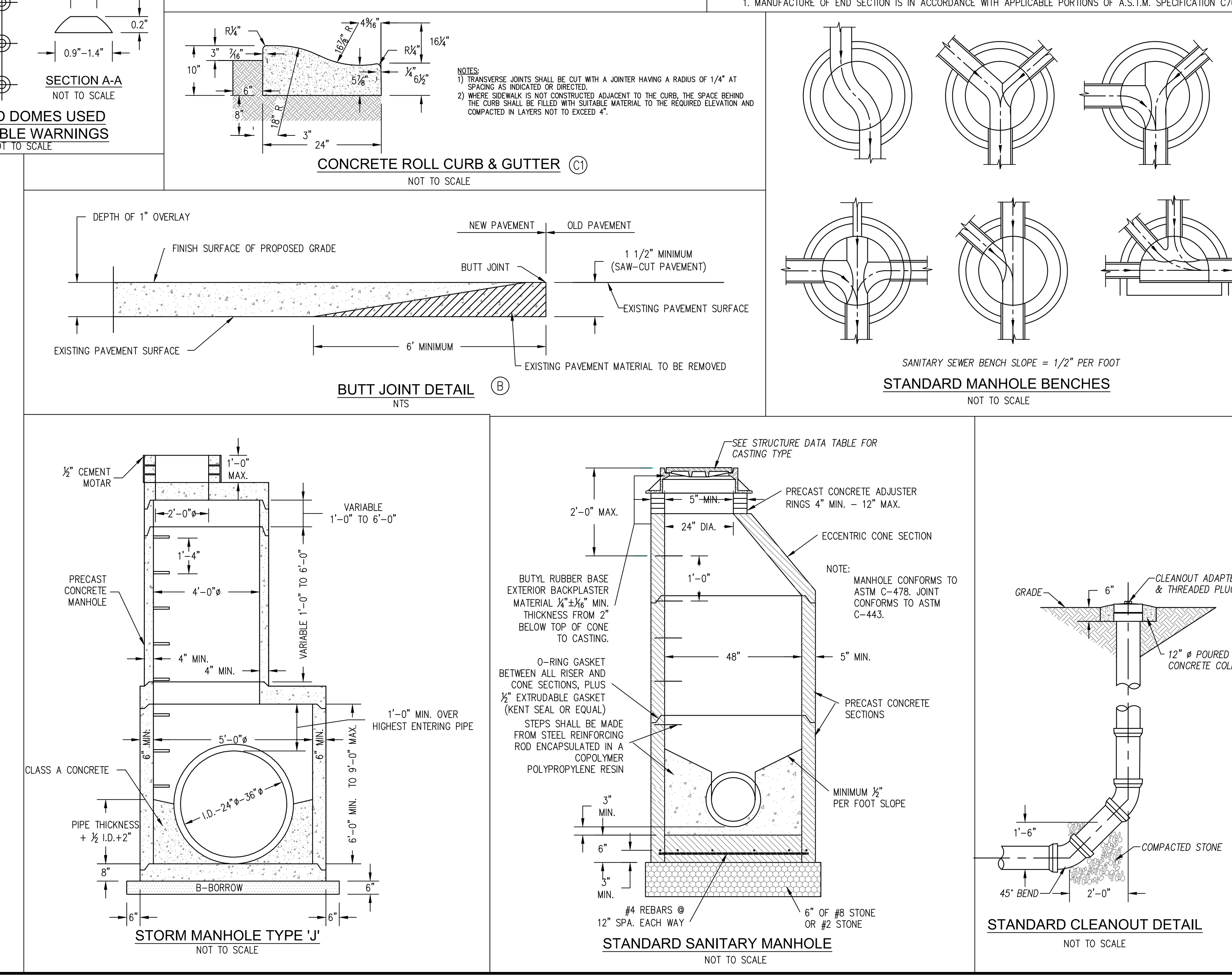
PRECAST CONCRETE END SECTION TABLE

DIA.	WALL	G OR T	WT. SEC.	A	B	C	D	E	DIA.+1	R-1	SKIRT
12	2	1 1/2	530	4	24	48 7/8	72 7/8	24	13	10 1/16	3 1/2
15	2 1/4	2	740	6	27	46	73	30	16	12 1/2	3 1/2
18	2 1/2	2 1/2	990	9	27	46	73	36	19	15 1/2	4
21	2 1/4	2 1/4	1280	9	35	38	73	42	22	16 1/8	4
24	2 1/2	2 1/2	1520	9 1/2	43 1/2	30	73 1/2	48	25	16 11/16	4 1/2
27	2 1/2	2 1/2	1930	10 1/2	48	25 1/2	73 1/2	54	28	17 3/4	4 1/2
30	3	3	2190	12	54	19 3/4	73 3/4	60	31	18 5/16	5
33	3 3/8	3 3/8	3150	13 1/2	58 1/2	39 1/4	97 3/4	66	34	23 3/4	5 1/2
36	3 1/2	3 1/2	4100	15	63	34 3/4	97 3/4	72	37	24 1/16	5 1/2
42	3 3/4	3 3/4	5380	21	63	35	98	78	43	27 1/4	5 1/2
46	4 1/4	4 1/4	6550	24	72	26	98	84	49	28 1/8	5 3/4
54	4 3/4	4 3/4	8040	27	65	35	100	90	55	32 7/8	6 1/4
60	5	5	8750	30	60	39	99	96	61	36 3/4	6 3/4
66	5 1/2	5 1/2	10630	24	78	21	99	102	67	35 11/16	7 1/4
72	6	6	12520	34	78	21	99	108	73	38 5/8	7 3/4
78	6 1/2	6 1/2	14430	24	78	21	99	114	79	41 15/16	8 1/2
84	7	7	16350	24	78	21	99	120	85	44 13/16	9

NOTES:
1. MANUFACTURE OF END SECTION IS IN ACCORDANCE WITH APPLICABLE PORTIONS OF A.S.T.M. SPECIFICATION C76.



TYPICAL EXISTING MANHOLE ENTRY DETAIL
CITY of FRANKLIN, INDIANA
DPW
DETAIL OF RAMP GROOVES
NOT TO SCALE
PLAN VIEW
ELEVATION VIEW
INLET TYPE 'J' & 'M'
NOT TO SCALE
PLAN VIEW
SECTION A-A
STORM MANHOLE TYPE 'C'
NOT TO SCALE
STANDARD MANHOLE DETAIL
CITY of FRANKLIN, INDIANA
DPW



CONCRETE ROLL CURB & GUTTER (C1)
NOT TO SCALE
SANITARY SEWER BENCH SLOPE = 1/2" PER FOOT
STANDARD MANHOLE BENCHES
NOT TO SCALE
BUTT JOINT DETAIL (B)
NTS
STORM MANHOLE TYPE 'J'
NOT TO SCALE
STANDARD SANITARY MANHOLE
NOT TO SCALE
STANDARD CLEANOUT DETAIL
NOT TO SCALE

MISCELLANEOUS DETAILS

WINDSOR AT HILLVIEW - SECTION 3

CROSSROAD ENGINEERS, PC — Transportation & Development Consultants

DRAWN: KLF/LMC/DEP | CHECKED: TEN | DESIGNED: DJM | APPR.: CJI

DATE: NOVEMBER 3, 2022

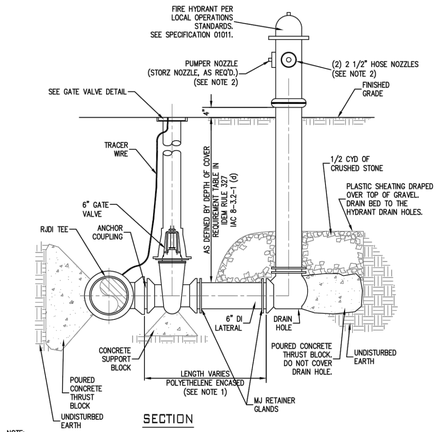
PRELIMINARY — NOT FOR CONSTRUCTION

GREGORY J. ILKO, REGISTERED No. 10300059, STATE OF INDIANA, PROFESSIONAL ENGINEER

REVISIONS

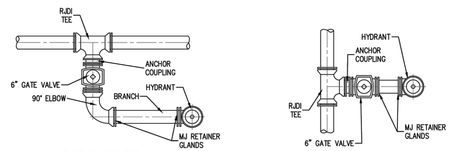
SHEET 1100

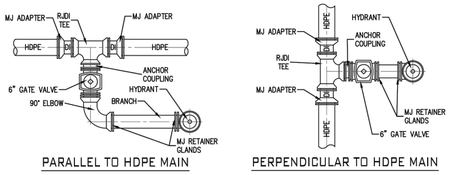
DIRECTORY PATH: R:\Active\John Grimmer\Hillview CC Property\Old Town PUD Modifications\Design\CAD\PLANS\CONSTRUCTION PLANS SEC 3 SPLIT
FILENAME: 1100 MISCELLANEOUS DETAILS.dwg
DATE/USER: 10/27/2022 4:06 PM / LCP

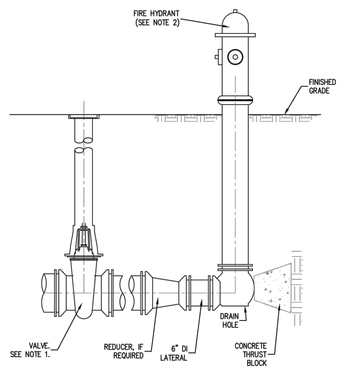


NOTE:
1. THE FIRE HYDRANT LATERAL, GATE VALVE, AND FIRE HYDRANT BARREL SHALL BE ENCASED IN POLYETHYLENE ENCASEMENT UP TO FINISHED GRADE PER SPECIFICATION 15130 PRIOR TO BACKFILL. THE POLYETHYLENE ENCASEMENT SHALL NOT INTERFERE WITH THE DRAIN HOLE.
2. WHEN INSTALLED BEHIND CURB, PUMPER AND HOSE NOZZLES TO BE AT LEAST 18"-24", DEPENDING ON LOCAL REQUIREMENTS, FROM FACE OF CURB.

FIRE HYDRANT DETAILS
N.T.S.

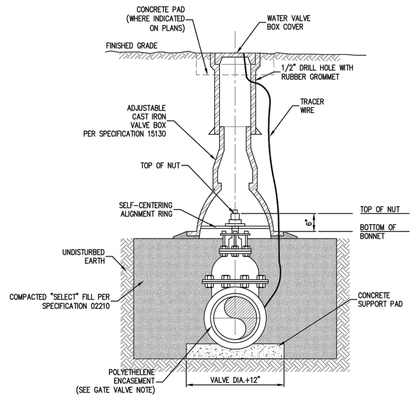






NOTE:
1. RESTRAIN VALVE AS A DEAD-END.
2. INSTALL FIRE HYDRANT PER INSTALLATION STANDARD DETAIL. HYDRANT AUXILIARY VALVE NOT REQUIRED.

TEMPORARY DEAD-END FIRE HYDRANT
N.T.S.



GATE VALVE (12" AND SMALLER)
N.T.S.

GATE VALVE NOTE
THE POLYETHELENE ENCASEMENT SHALL BE INSTALLED UP TO THE OPERATING NUT, AND OVER THE LOWER PORTION OF THE VALVE BOX, LEAVING THE OPERATING NUT EXPOSED AND FREE TO BE OPERATED WITHIN THE VALVE BOX.

INDIANA AMERICAN WATER
ENGINEERING DEPARTMENT
153 N. EMERSON AVENUE
GREENWOOD, INDIANA 46143

STANDARD DETAIL

FIRE HYDRANT DETAIL

DATE: JANUARY, 2018	DRAWN BY: S. FORD
LATEST REV: JULY, 2018	APP'D BY: E.N.

INDIANA AMERICAN WATER
ENGINEERING DEPARTMENT
153 N. EMERSON AVENUE
GREENWOOD, INDIANA 46143

STANDARD DETAIL

FIRE HYDRANT INSTALLATION DETAILS

DATE: JANUARY, 2018	DRAWN BY: S. FORD
LATEST REV: JULY, 2018	APP'D BY: E.N.

INDIANA AMERICAN WATER
ENGINEERING DEPARTMENT
153 N. EMERSON AVENUE
GREENWOOD, INDIANA 46143

STANDARD DETAIL

TEMPORARY DEAD-END FIRE HYDRANT DETAIL

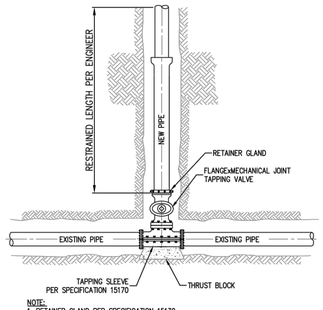
DATE: JANUARY, 2018	DRAWN BY: S. FORD
LATEST REV: JULY, 2018	APP'D BY: E.N.

INDIANA AMERICAN WATER
ENGINEERING DEPARTMENT
153 N. EMERSON AVENUE
GREENWOOD, INDIANA 46143

STANDARD DETAIL

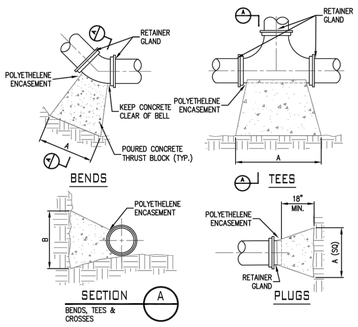
GATE VALVE (12" AND SMALLER)

DATE: JANUARY, 2018	DRAWN BY: S. FORD
LATEST REV: JANUARY, 2018	APP'D BY: E.N.



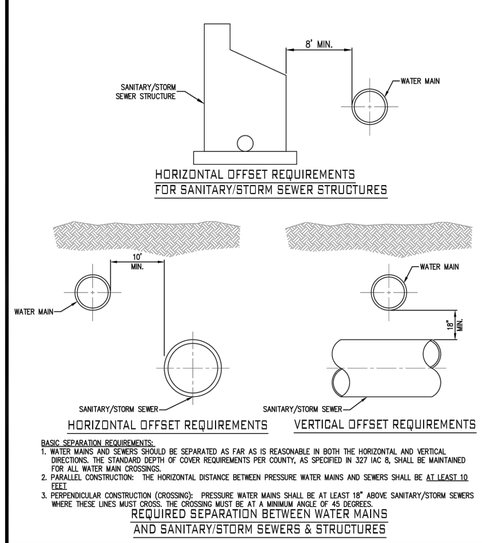
NOTE:
1. RETAINER GLAND PER SPECIFICATION 15130.
2. TAPPING SLEEVE FOR HDPE PIPE MUST BE APPROVED FOR THE APPLICATION BY THE MANUFACTURER AND INAWC.

TAPPING SLEEVE AND TAPPING VALVE DETAIL
N.T.S.



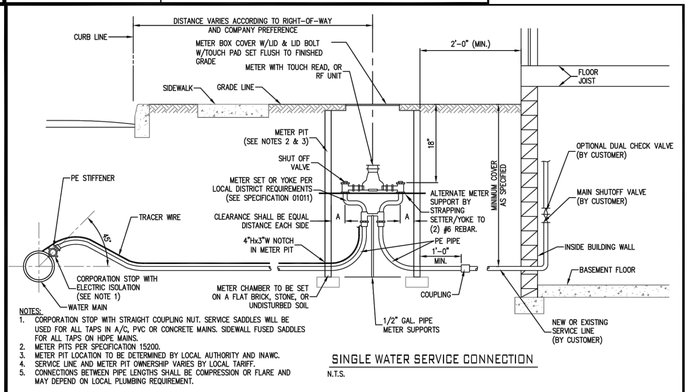
THRUST BLOCK DETAIL
N.T.S.

NOTES:
1. THRUST BLOCK DIMENSIONS SHALL BE PROVIDED BY THE DESIGN ENGINEER.
2. THRUST BLOCKS SHALL BE INSTALLED AGAINST UNDISTURBED SOIL WITH ADEQUATE BEARING TO PREVENT MOVEMENT OF FITTING.
3. NO THRUST BLOCKS TO BE PLACED IN SEWER LATERAL DITCHES.
4. THRUST BLOCKING MUST FIT IN EASEMENT, IN SOME CASES ADDITIONAL RESTRAINT MAY BE REQUIRED.
5. DESIGN TO BE BASED ON 200 PSI HYDROSTATIC WATER PRESSURE (150 PSI STATIC PRESSURE PLUS 50 PSI WATER HAMMER).
6. INSTALL POLYETHYLENE ENCASEMENT ON ALL D.I. PIPE AND FITTINGS PRIOR TO POURING CONCRETE.
7. PIPE JOINTS AND BOLTS MUST BE ACCESSIBLE.
8. ALLOW SUFFICIENT CLEARANCE BETWEEN CONCRETE AND BOLTS FOR FUTURE MAINTENANCE.
9. ALL ANCHOR BOLTS SHALL BE CORROSION RESISTANT, AND SIZED PER SPECIFICATION.
10. THRUST BLOCKING DETAILS ARE SHOWN HERE FOR TYPICAL INSTALLATIONS. IN SOME CASES, ADDITIONAL RESTRAINT MAY BE REQUIRED.
11. CONCRETE USED FOR THRUST BLOCKS SHALL BE MIN 3000 PSI CONCRETE.
12. FOR UNSTABLE SOIL CONDITIONS, THE ENGINEER SHALL VERIFY THRUST BLOCK DIMENSIONS.



BASIC SEPARATION REQUIREMENTS:
1. WATER MAINS AND SEWERS SHOULD BE SEPARATED AS FAR AS IS REASONABLE IN BOTH THE HORIZONTAL AND VERTICAL DIRECTIONS. THE STANDARD DEPTH OF COVER REQUIREMENTS PER COUNTY, AS SPECIFIED IN 327 IAC 8, SHALL BE MAINTAINED FOR ALL WATER MAIN CROSSINGS.
2. PARALLEL CONSTRUCTION: THE HORIZONTAL DISTANCE BETWEEN PRESSURE WATER MAINS AND SEWERS SHALL BE AT LEAST 10 FEET.
3. PERPENDICULAR CONSTRUCTION (CROSSING): PRESSURE WATER MAINS SHALL BE AT LEAST 18" ABOVE SANITARY/STORM SEWERS WHERE THESE LINES MUST CROSS. THE CROSSING MUST BE AT A MINIMUM ANGLE OF 45 DEGREES.

REQUIRED SEPARATION BETWEEN WATER MAINS AND SANITARY/STORM SEWERS & STRUCTURES



NOTES:
1. CORPORATION STOP WITH STRAIGHT COUPLING NUT. SERVICE SADDLES WILL BE USED FOR ALL TAPS IN A/C, PVC OR CONCRETE MAINS. SIDEWALL FUSED SADDLES FOR ALL TAPS ON HDPE MAINS.
2. METER PITS PER SPECIFICATION 15200.
3. METER PIT LOCATION TO BE DETERMINED BY LOCAL AUTHORITY AND INAWC.
4. SERVICE LINE AND METER PIT OWNERSHIP VARIES BY LOCAL TARIFF.
5. CONNECTIONS BETWEEN PIPE LENGTHS SHALL BE COMPRESSION OR FLARE AND MAY DEPEND ON LOCAL PLUMBING REQUIREMENT.

SINGLE WATER SERVICE CONNECTION
N.T.S.

INDIANA AMERICAN WATER
ENGINEERING DEPARTMENT
153 N. EMERSON AVENUE
GREENWOOD, INDIANA 46143

STANDARD DETAIL

TAPPING SLEEVE AND TAPPING VALVE

DATE: JANUARY, 2018	DRAWN BY: S. FORD
LATEST REV: JANUARY, 2018	APP'D BY: E.N.

INDIANA AMERICAN WATER
ENGINEERING DEPARTMENT
153 N. EMERSON AVENUE
GREENWOOD, INDIANA 46143

STANDARD DETAIL

THRUST BLOCKS

DATE: JANUARY, 2018	DRAWN BY: S. FORD
LATEST REV: JANUARY, 2018	APP'D BY: E.N.

INDIANA AMERICAN WATER
ENGINEERING DEPARTMENT
153 N. EMERSON AVENUE
GREENWOOD, INDIANA 46143

STANDARD DETAIL

SEWER SEPARATION

DATE: JANUARY, 2018	DRAWN BY: S. FORD
LATEST REV: JULY, 2018	APP'D BY: E.N.

INDIANA AMERICAN WATER
ENGINEERING DEPARTMENT
153 N. EMERSON AVENUE
GREENWOOD, INDIANA 46143

STANDARD DETAIL

SINGLE WATER SERVICE

DATE: JANUARY, 2018	DRAWN BY: S. FORD
LATEST REV: JANUARY, 2018	APP'D BY: E.N.

CROSSROAD ENGINEERS, PC
Transportation & Development Consultants
115 N. 17th AVENUE, BEECH GROVE, IN 46107 (317) 780-1555

WATER DETAILS

WINDSOR AT HILLVIEW - SECTION 3

JOB No.	.	DRAWN	KLF/LMC/DEP	CHECKED	TEN	APPR.	GJI
DATE	NOVEMBER 3, 2022	DESIGNED	DJM				

SHEET 1101

GREGORY J. ILKO
REGISTERED
10300059
STATE OF INDIANA
PROFESSIONAL ENGINEER
PRELIMINARY NOT FOR CONSTRUCTION

NO.	DATE	REVISIONS	BY	APPR.
9				
8				
7				
6				
5				
4				
3				
2				
1				

SHEET 1101

DIRECTORY PATH : R:\Active\John Grimmer\Hillview CC Property\Old Town PUD Modifications\Design\CAD\PLANS\CONSTRUCTION PLANS SEC 3 SPLIT
FILENAME : 1101 WATER DETAILS.dwg
DATE/USER : 10/27/2022 4:14 PM / LCP

EARTHWORK

1. SCOPE OF WORK
   - A. EXTENT: THE WORK REQUIRED UNDER THIS SECTION CONSISTS OF ALL EXCAVATING, FILLING, ROUGH GRADING AND RELATED ITEMS NECESSARY TO COMPLETE THE WORK INDICATED ON THE DRAWINGS AND DESCRIBED IN THE SPECIFICATIONS. THE CONTRACTOR SHALL NOTIFY IN WRITING THE OWNER AND THE ENGINEER OF ANY CHANGES, ERRORS OR OMISSIONS FOUND ON THE PLANS OR IN THE FIELD, BEFORE WORK IS STARTED OR RESUMED.
     1. IN GENERAL, THE ITEMS OF WORK TO BE PERFORMED UNDER THIS SECTION SHALL INCLUDE CLEARING AND GRUBBING, REMOVAL OF TREES AND STUMPS, STRIPPING AND STORAGE OF TOPSOIL, FILL COMPACTION AND ROUGH GRADING OF ENTIRE SITE. ALL TREES SHALL BE REMOVED UNLESS OTHERWISE NOTED IN PLANS OR DIRECTED BY OWNER.
     2. EXCAVATED MATERIAL THAT IS SUITABLE MAY BE USED FOR FILLS. ALL UNSUITABLE MATERIAL AND ALL SURPLUS EXCAVATED MATERIAL NOT REQUIRED SHALL BE REMOVED FROM THE SITE. THE LOCATION OF DUMP AND LENGTH OF HAUL SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
     3. PROVIDE AND PLACE ANY ADDITIONAL FILL MATERIAL FROM OFF THE SITE AS MAY BE NECESSARY TO PRODUCE THE GRADES REQUIRED. FILL OBTAINED FROM OFF SITE SHALL BE OF KIND AND QUALITY AS SPECIFIED FOR FILLS HEREIN AND THE SOURCE APPROVED BY THE OWNER.
     4. THE CONTRACTOR SHALL ACCEPT THE SITE AS HE FINDS IT AND SHALL REMOVE ALL TRASH, RUBBISH AND DEBRIS FROM THE SITE PRIOR TO STARTING EXCAVATION
2. BENCHMARK
   - A. MAINTAIN CAREFULLY ALL BENCH MARKS, MONUMENTS AND OTHER REFERENCE POINTS; IF DISTURBED OR DESTROYED, CONTRACTOR SHALL CONTACT ENGINEER.
3. REMOVAL OF TREES
   - A. THE INTEGRITY OF THE TOPOGRAPHIC FEATURES (INCLUDING TREES) SHALL BE PERSEVERED AS MUCH AS POSSIBLE THE CONTRACTOR SHALL COORDINATE WITH OWNER AND/OR ENGINEER PRIOR TO CLEARING THE SITE FOR CONSTRUCTION.
   - B. ALL BRUSH, STUMPS, WOOD AND OTHER REFUSE FROM THE TREES REMOVED SHALL BE HAULED TO DISPOSAL AREAS OFF OF THE SITE. DISPOSAL BY BURNING SHALL NOT BE PERMITTED UNLESS PROPER PERMITS ARE OBTAINED (WHERE APPLICABLE).
4. HANDLING OF TOPSOIL
   - A. REMOVE ALL ORGANIC MATERIAL FROM THE AREAS TO BE OCCUPIED BY BUILDINGS, ROADS, WALKS AND PARKING AREAS. PILE AND STORE TOPSOIL AT A LOCATION WHERE IT WILL NOT INTERFERE WITH CONSTRUCTION OPERATIONS. TOPSOIL SHALL BE REASONABLE FREE FROM SUBSOIL, DEBRIS, WEEDS, GRASS, STONES, ETC.
   - B. AFTER COMPLETION OF SITE GRADING AND SUBSURFACE UTILITY INSTALLATION, TOPSOIL SHALL BE REPLACED IN AREAS DESIGNATED ON THE EROSION CONTROL PLAN FOR SEEDING AND/OR SODDING. ANY REMAINING TOPSOIL SHALL BE USED FOR FINISHED GRADING AROUND STRUCTURES AND LANDSCAPING AREAS.
5. DISPOSITION OF UTILITIES
   - A. RULES AND REGULATIONS GOVERNING THE RESPECTIVE UTILITIES SHALL BE OBSERVED IN EXECUTING ALL WORK UNDER THIS SECTION.
   - B. IF ACTIVE UTILITIES ARE ENCOUNTERED BUT NOT SHOWN ON THE DRAWINGS, THE ENGINEER SHALL BE ADVISED BEFORE WORK IS CONTINUED.
   - C. INACTIVE AND ABANDONED UTILITIES ENCOUNTERED IN EXCAVATING AND GRADING OPERATIONS SHALL BE REPORTED TO THE ENGINEER. THEY SHALL BE REMOVED, PLUGGED OR CAPPED AS DIRECTED BY THE UTILITY COMPANY OR THE ENGINEER.
   - D. IT SHALL BE THE RESPONSIBILITY OF EACH CONTRACTOR TO VERITY ALL EXISTING UTILITIES AND CONDITIONS PERTAINING TO HIS PHASE OF THE WORK. IT SHALL ALSO BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE OWNERS OF THE VARIOUS UTILITIES BEFORE WORK IS STARTED.
6. SITE GRADING
   - A. GRADES: CONTRACTOR SHALL PERFORM ALL CUTTING, FILLING, COMPACTING OF FILLS AND ROUGH GRADING REQUIRED TO BRING ENTIRE PROJECT AREA TO GRADE AS SHOWN ON THE DRAWINGS.
   - B. ROUGH GRADING: THE TOLERANCE FOR PAVED AREAS SHALL NOT EXCEED 0.10 FEET PLUS OR MINUS ABOVE THE ESTABLISHED SUBGRADE. ALL OTHER AREAS SHALL NOT EXCEED 0.10 FEET PLUS OR MINUS THE ESTABLISHED GRADE. ALL BANKS AND OTHER BREAKS IN GRADE SHALL BE ROUNDED AT THE TOP AND BOTTOM.
   - C. COMPACTION REQUIREMENTS:
     1. ALL BUILDING PAD AREAS SHALL BE COMPACTED TO STANDARDS SPECIFIED BY LOCAL AND/OR STATE BUILDING CODES.
     2. COMPACTION REQUIREMENTS OF PAVED AREAS SHALL BE 95% OF MAXIMUM DRY DENSITY.
7. EARTH WORK BALANCE
   - A. THE CONTRACTOR SHALL CONFIRM ALL EARTHWORK QUANTITIES PRIOR TO START OF CONSTRUCTION. IF AN EXCESS OR SHORTAGE OF EARTH IS ENCOUNTERED, THE CONTRACTOR SHALL CONFIRM WITH THE OWNER AND ENGINEER THE REQUIREMENTS FOR STOCKPILING, REMOVAL OR IMPORTING OF EARTH.

     MINOR ADJUSTMENTS TO THE GRADES MAY BE REQUIRED TO EARTHWORK BALANCES WHEN MINOR EXCESS MATERIAL OR SHORTAGES ARE ENCOUNTERED. IT IS RECOGNIZED BY THE PARTIES HERETO THAT THE CALCULATIONS OF THE ENGINEER IN ACCORDANCE WITH THE AMERICAN SOCIETY OF CIVIL ENGINEERS STANDARDS FOR SUCH CALCULATIONS. FURTHER, THAT THESE CALCULATIONS ARE SUBJECT TO THE INTERPRETATIONS OF SOIL BORINGS AS THE PHYSICAL LIMITS IN FINISH GRADE AND COMPACTION PERMITTED THE CONTRACTOR, AND THAT ALL OF THESE PARAMETERS MAY CAUSE EITHER AN EXCESS OR SHORTAGE OF ACTUAL EARTHWORK MATERIALS TO COMPLETE THE PROJECT. IF SUCH AN ACTUAL MINOR EXCESS OR SHORTAGE OF ACTUAL EARTHWORK MATERIALS OCCURS, THE CONTRACTOR SHALL CONTACT THE ENGINEER TO DETERMINE IF ADJUSTMENTS CAN BE MADE TO CORRECT THE IMBALANCE OF EARTH.

STREETS

1. SCOPE OF WORK
   - A. THE WORK REQUIRED UNDER THIS SECTION INCLUDES ALL CONCRETE AND BITUMINOUS PAVING AND RELATED ITEMS NECESSARY TO COMPLETE THE WORK INDICATED ON THE DRAWINGS AND DESCRIBED IN THE SPECIFICATIONS, INCLUDING BUT NOT LIMITED TO:
     1. ALL STREETS, PARKING AREAS WITHIN THE CONTRACT LIMITS.
     2. CURBS AND CONCRETE RAMPS.
     3. SIDEWALKS AND CONCRETE SLABS.
     4. IN THE CASE OF ANY CONFLICTS WITH THESE SPECIFICATIONS AND LOCAL, STATE, FEDERAL SPECIFICATIONS THE MORE STRINGENT SHALL APPLY.
   - B. IN THE CASE OF ANY CONFLICTS WITH THESE SPECIFICATIONS AND LOCAL, STATE, FEDERAL SPECIFICATIONS THE MORE STRINGENT SHALL APPLY.
2. PAVEMENT CONSTRUCTION
   - A. ALL STREET CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS AND CONFORM TO THE MINIMUM STANDARDS OF THE CITY OF FRANKLIN AND ENGINEERING DEPARTMENTS, AND IF THERE ARE AREAS UNDEFINED USE THE CURRENT I.N.D.O.T. STANDARDS SPECIFICATIONS, AS REVISED.
   - B. FLEXIBLE PAVEMENT
     1. MATERIALS
        - A. GENERAL: USE LOCALLY AVAILABLE MATERIALS AND GRADATIONS WHICH EXHIBIT A SATISFACTORY RECORD OF PREVIOUS INSTALLATIONS.
        - B. COMPACTED AGGREGATE BASE: SOUND, ANGULAR CRUSHED LIMESTONE, CRUSHED OR UNCRUSHED GRAVEL, OR CRUSHED OR PROCESSED AIR-COOLED BLAST FURNACE SLAG. COURSE AGGREGATE SHALL BE CLASS A, TYPE "O" AND CONFORM TO I.N.D.O.T. STANDARD SPECIFICATIONS SECTION 903.
        - C. BASE COURT AGGREGATE: SOUND, ANGULAR CRUSHED STONE, CRUSHED OR UNCRUSHED GRAVEL, OR CRUSHED SLAG, SAND, STONE, OR SLAG SCREENINGS. COARSE AGGREGATES SHALL BE CLASS A OR B AND CONFORM TO I.N.D.O.T. STANDARDS SPECIFICATIONS SECTION 903.
        - D. COARSE AGGREGATE FOR SURFACE AND BINDER MIXTURES: CRUSHED STONE, CRUSHED GRAVEL, CRUSHED SLAB, AND SHARP EDGED NATURAL SAND. SURFACE COARSE AGGREGATES SHALL BE CLASS A AND CONFORM TO I.N.D.O.T. STANDARD SPECIFICATIONS SECTION 903.
        - E. ASPHALT CEMENT: PETROLEUM ASPHALT CEMENT, AP 5 WITH PENETRATION OF 60-70 OR VISCOSITY GRADED ASPHALT CEMENT AC-20 CONFORMING TO I.N.D.O.T. STANDARD SPECIFICATIONS SECTION 903.
        - F. PRIME COAT: MEDIUM-CURE LIQUID ASPHALT OR ASPHALT EMULSION CONFORMING TO I.N.D.O.T. STANDARD SPECIFICATIONS SECTION 408.
        - G. TACK COAT: RAPID-CURE LIQUID ASPHALT OR ASPHALT EMULSION CONFORMING TO I.N.D.O.T. STANDARD SPECIFICATIONS SECTION 409.
        - H. LANE MARKING PAINT: CHLORINATED RUBBER-ALKYD TYPE, AASHTO M248 (FS TT-P-115), TYPE III.
3. ASPHALT-AGGREGATE MIXTURE

   ALL BITUMINOUS MIXTURES ARE TO CONFORM TO CURRENT I.N.D.O.T. SPECIFICATIONS
   - A. SURFACE COURSE: HMA SURFACE 9.5mm
   - B. BINDER COURSE: HMA INTERMEDIATE 19.0mm
   - C. BASE COURSE: TYPE: HMA BASE 25.0mm

     **PROVIDED A JOB MIX FORMULA FOR EACH TYPE OF ASPHALT PRIOR TO THE BEGINNING OF THE CONSTRUCTION PROJECT.
4. SURFACE PREPARATION
   - A. REMOVE LOOSE MATERIAL FROM COMPACTED SUBBASE SURFACE IMMEDIATELY BEFORE APPLYING PRIME COAT.
     - I) PROOF ROLL SUBGRADE SURFACE WITH LOADED TRI-AXLE TRUCK (48 HOUR NOTICE IS REQUIRED TO BE GIVEN TO THE CITY OF FRANKLIN ENGINEERING DEPT.) TO CHECK FOR UNSTABLE AREAS AND AREAS REQUIRING ADDITIONAL COMPACTION. IF PROOF ROLL EXCEEDS MAXIMUM ¼" DEFLECTION, CONTRACTOR SHALL COORDINATE WITH ENGINEER AND CITY OF FRANKLIN TO DETERMINE IF SUBGRADE STABILIZATION IS REQUIRED.
     - II) NOTIFY CONTRACTOR OF UNSATISFACTORY CONDITIONS. DO NOT BEGIN PAVING WORK UNTIL DEFICIENT SUBBASE AREAS HAVE BEEN CORRECTED AND ARE READY TO RECEIVE PAVING.
   - B. AGGREGATE BASE: AFTER PLACEMENT, PROOF ROLL COMPACTED AGGREGATE BASE SURFACE TO CHECK FOR UNSTABLE AREAS AND AREAS REQUIRING ADDITIONAL COMPACTION.
     - I) NOTIFY CONTRACTOR OF UNSATISFACTORY CONDITIONS. DO NOT BEGIN PAVING WORK UNTIL DEFICIENT AGGREGATE BASE AREAS HAVE BEEN CORRECTED AND ARE READY TO RECEIVE PAVING.
     - II) REMOVE LOOSE MATERIAL FROM COMPACTED AGGREGATE BASE SURFACE IMMEDIATELY BEFORE APPLYING PRIME COAT.
5. PLACING THE MIX
   - A. GENERAL: PLACE BITUMINOUS AGGREGATE MIXTURE ON PREPARED SURFACE, SPREAD AND STRIKE-OFF. SPREAD MIXTURE AT MINIMUM TEMPERATURE OF 225 DEGREES F.(107 DEGREES C). PLACE INACCESSIBLE AND SMALL AREAS BY HAND. PLACE EACH COURSE TO REQUIRED GRADE, CROSS-SECTION, AND COMPACTED THICKNESS.
   - B. BASE COURSE, COMPACTED AGGREGATE: SPREAD AND COMPACT IN TWO LIFTS AS FOLLOWS:
     - I) FIRST LIFT: NO. 53'S SHALL BE A MINIMUM OF 4" OR ½ THE TOTAL DEPTH OF AGGREGATE. EXTEND THE FIRS LIFT 4" OR A DISTANCE EQUAL TO THE DEPTH OF THE LIFT BEYOND THE SECOND LIFT.
     - II) SECOND LIFT: SIZE NO. 53
   - C. PRIME COAT: SUBBASE SURFACE SHALL BE PRIMED IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF SECTION 408 OF I.N.D.O.T. STANDARD SPECIFICATIONS.
   - D. HOT ASPHALT CONCRETE BINDER COURSE: SPREAD AND ROLL TO MINIMUM FINISH DEPTHS INDICATED ON DETAILS.
   - E. TACK COAT: BINDER COURSE SHALL BE TACKED PRIOR TO THE INSTALLATION OF THE SURFACE COURSE IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF SECTION 409 OF I.N.D.O.T. STANDARD SPECIFICATIONS.
   - F. SURFACE COURSE: SPREAD AND ROLL TO MINIMUM FINISH DEPTH INDICATED ON DETAILS. FINISH ELEVATION SHALL BE TRUE TO LINE AND GRADE WITHIN ½" OF TRUE ELEVATIONS.
   - G. PAVER PLACING: PLACE IN STRIPS NOT LESS THAN 10' WIDE, UNLESS OTHERWISE ACCEPTABLE TO ARCHITECT/ENGINEER. AFTER FIRST STRIP HAS BEEN PLACED AND ROLLED, PLACE SUCCEEDING STRIPS AND EXTEND ROLLING TO OVERLAP PREVIOUS STRIPS. COMPLETE BINDER COURSE FOR A SECTION BEFORE PLACING SURFACE COURSE.
   - H. JOINTS: MAKE JOINTS BETWEEN OLD AND NEW PAVEMENTS, OR BETWEEN PAVER PASSES, OR BETWEEN SUCCESSIVE DAYS WORK, TO ENSURE CONTINUOUS BOND BETWEEN ADJOINING WORK. CONSTRUCT JOINTS TO HAVE SAME TEXTURE, DENSITY AND SMOOTHNESS AS OTHER SECTIONS. CLEAN CONTACT SURFACES AND APPLY TACT COAT.
6. ROLLING
   - A. GENERAL: BEGIN ROLLING WHEN MIXTURE WILL BEAR ROLLER WEIGHT WITHOUT EXCESSIVE DISPLACEMENT.
     - I) COMPACT MIXTURE WITH HOT HAND TAMPERS OR VIBRATING PLATE COMPACTORS IN AREAS INACCESSIBLE TO ROLLERS.
   - B. BREAKDOWN ROLLING: ACCOMPLISH BREAKDOWN OR INITIAL ROLLING IMMEDIATELY FOLLOWING ROLLING OF JOINTS AND OUTSIDE EDGE. CHECK SURFACE AFTER BREAKDOWN ROLLING, AND REPAIR DISPLACED AREAS BY LOOSENING AND FILLING, IF REQUIRED, WITH HOT MATERIAL.
   - C. SECOND ROLLING: FOLLOW BREAKDOWN ROLLING AS SOON AS POSSIBLE, WHICH MIXTURE IS HOT. CONTINUE SECOND ROLLING UNTIL MIXTURE HAS BEEN THOROUGHLY COMPACTED.
   - D. FINISH ROLLING: PERFORM FINISH ROLLING WHILE MIXTURE IS STILL WARM ENOUGH FOR REMOVAL OF ROLLER MARKS. CONTINUE ROLLING UNTIL ROLLER MARKS ARE ELIMINATED AND COURSE HAS ATTAINED MAXIMUM DENSITY.
   - E. PATCHING: REMOVE AND REPLACE PAVING AREAS MIXED WITH FOREIGN MATERIALS AND DEFECTIVE AREAS. CUT OUT SUCH AREAS AND FILL WITH FRESH, HOT BITUMINOUS AGGREGATE MIX. COMPACT BY ROLLING TO MAXIMUM SURFACE DENSITY AND SMOOTHNESS.
   - F. PROTECTION: AFTER FINAL ROLLING, DO NOT PERMIT VEHICULAR TRAFFIC ON PAVEMENT UNTIL IT HAS COOLED AND HARDENED.
   - G. ERECT BARRICADES TO PROTECT PAVING FROM TRAFFIC UNTIL MIXTURE HAS COOLED ENOUGH NOT TO BECOME MARKED.
7. TRAFFIC AND LANE MARKINGS
   - A. CLEANING: SWEEP AND CLEAN SURFACE TO ELIMINATE LOOSE MATERIAL AND DUST.
   - B. STRIPPING: USE CHLORINATED RUBBER BASE TRAFFIC LANE-MARKING PAINT, FACTORY MIXED, QUICK-DRYING, AND NON-BLEEDING.

     COLOR: YELLOW
     - I) DO NOT APPLY TRAFFIC AND LANE MARKING PAINT UNTIL LAYOUT AND PLACEMENT HAS BEEN VERIFIED WITH ARCHITECT/ENGINEER.
     - II) APPLY PAINT WITH MECHANICAL EQUIPMENT TO PRODUCE UNIFORM STRAIGHT EDGES. APPLY IN TWO COATS AT MANUFACTURER'S RECOMMENDED RATES.
8. FIELD QUALITY CONTROL
   - A. TESTING AND INSPECTION SERVICE:
     - I) OWNER SHALL EMPLOY A TESTING LABORATORY TO PERFORM PAVEMENT TESTING AND INSPECTION SERVICE FOR QUALITY CONTROL DURING PAVING OPERATIONS.
     - II) TESTING SERVICE SHALL HAVE REPRESENTATIVE PRESENT TO OBSERVE AND PERFORM TESTS AT ALL TIMES PAVING WORK IS IN PROGRESS.
   - B. GENERAL: TESTING SERVICE REPRESENTATIVE SHALL TAKE A MINIMUM OF TWO SAMPLES PER LIFT OF BITUMINOUS AGGREGATE MIX EACH DAY BEFORE PAVING OPERATION. LABORATORY TEST SHALL BE PERFORMED ON THESE SAMPLES TO DETERMINE AGGREGATE GRADATION AND ASPHALT CONTENT.
     - I) TEST IN-PLACE COMPACTED BITUMINOUS AGGREGATE MIX COURSES FOR COMPLIANCE WITH REQUIREMENTS FOR THICKNESS, DENSITY AND AIR VOIDS AND SURFACE SMOOTHNESS. REPAIR OR REMOVE AND REPLACE UNACCEPTABLE PAVING AS DIRECTED BY ENGINEER.
     - II) A TEST SECTION AT A MINIMUM SIZE OF 100'X12' SHALL BE PLACED AT A LOCATION AS DIRECTED BY THE COUNTY PRIOR TO FULL PRODUCTION FOR EACH TYPE OF MIX. THE TEST SECTION SHALL BE COMPACTED TO DETERMINE A TARGET DENSITY FOR THE REMAINDER OF THE PAVEMENT.
   - C. THICKNESS: IN-PLACE COMPACTED THICKNESS WILL NOT BE ACCEPTABLE IF EXCEEDING FOLLOWING ALLOWABLE VARIATION FROM REQUIRED THICKNESS:

     AGGREGATE BASE COURSE: ½", PLUS OR MINUS
     BASE COURSE: ½", PLUS OR MINUS
     BINDER COURSE: ¼", PLUS OR MINUS
     SURFACE COURSE: ¼", PLUS OR MINUS
     - I) A MINIMUM OF TWO PAVEMENT CORES PER COMPACTED LIFT SHALL BE TAKEN. CORES ARE TO BE TAKEN AT LOCATIONS AND AT TIMES OF DAY AS DIRECTED BY THE TESTING SERVICE. THE FOLLOWING TESTS SHALL BE PERFORMED BY THE TESTING SERVICE, ON EACH PAVEMENT CORE:
     - II) A TEST SECTION AT A MINIMUM SIZE OF 100'X12' SHALL BE PLACED AT A LOCATION AS DIRECTED BY THE COUNTY PRIOR TO FULL PRODUCTION FOR EACH TYPE OF MIX. THE TEST SECTION SHALL BE COMPACTED TO DETERMINE A TARGET DENSITY OF THE REMAINDER OF THE PAVEMENT.
   - D. PAVEMENT THICKNESS

     DENSITY
     AIR VOIDS
     - I) TESTING SERVICE SHALL SUBMIT CERTIFIED RESULTS TO THE OWNER AND ARCHITECT/ENGINEER WITHIN 72 HOURS AFTER TESTS ARE MADE, WITH THEIR COMMENTS AND RECOMMENDATIONS FOR ACTION.
     - II) PAVEMENT WHICH FAILS TO COMPLY WITH APPROVED JOB MIX FORMULA SHALL BE REPLACED AS DIRECTED BY THE ARCHITECT/ENGINEER.
   - E. SURFACE SMOOTHNESS: TEST FINISHED SURFACE FOR SMOOTHNESS, USING 10' STRAIGHTEDGE APPLIED PARALLEL WITH, AND AT RIGHT ANGLES TO CENTERLINE OF PAVED AREA. SURFACE WILL NOT BE ACCEPTABLE IF EXCEEDING THE FOLLOWING TOLERANCES FOR SMOOTHNESS.

     AGGREGATE BASE COURSE SURFACE:1/4"
     BASE COURSE SURFACE: 1/4"
     BINDER COURSE SURFACE: 1/8"
     WEARING COURSE SURFACE: 1/8"
     - I) CHECK SURFACED AREAS AT INTERVALS AS DIRECTED BY TESTING SERVICE.
   - F. DENSITY TESTS: DENSITY TESTS SHALL BE MADE AT EACH LIFT. TEST SHALL BE AS FOLLOWS:
     - I) TESTS WILL BE REQUIRED AT VARIOUS TIMES AND LOCATIONS FOR SUBGRADE AND BASE COURSES FOR ASPHALT PAVING AREAS.
   - G. TESTING SERVICE SHALL SUBMIT CERTIFIED RESULTS TO THE OWNER AND ENGINEER WITHIN 72 HOURS AFTER TESTS ARE MADE WITH THEIR COMMENTS AND RECOMMENDATIONS FOR ACTION.
     - I) SUBGRADE SHALL BE PREPARED IN ACCORDANCE WITH I.N.D.O.T. STANDARD SPECIFICATIONS, SECTION 207 AND SUBSECTION 501.07. NO TRAFFIC SHALL BE PERMITTED ON THE PREPARED SUBGRADE PRIOR TO PAVING.
     - II) SEE SITE GRADING, UNDER THE 'EARTHWORK' SECTION FOR ADDITIONAL COMPACTION REQUIREMENTS.
9. APPLICATION
   - A. GRADING: DO ANY NECESSARY GRADING IN ADDITION TO THAT PERFORMED IN ACCORDANCE WITH EARTHWORK SECTION TO BRING SUBGRADES, AFTER FINAL COMPACTION, TO THE REQUIRED GRADES AND SECTIONS FOR SITE IMPROVEMENTS.
   - B. PREPARATION OF SUBGRADE: REMOVE SPONGY AND OTHERWISE UNSUITABLE MATERIAL AND REPLACE WITH STABLE MATERIAL. NO TRAFFIC WILL BE ALLOWED ON PREPARED SUBGRADE PRIOR TO PAVING.
   - C. COMPACTION OF SUBGRADE: THE FIRST 6 INCHES BELOW THE SUBGRADE SHALL BE COMPACTED TO AT LEAST 100% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE PROVISIONS OF AASHO T-99. WATER SHALL BE PREVENTED FROM STANDING ON THE COMPACTED SUBGRADE.
   - D. UTILITY STRUCTURES: CHECK FOR CORRECT ELEVATION OF ALL MANHOLE COVERS, VALVE BOXES AND SIMILAR STRUCTURES LOCATED WITHIN AREAS TO BE PAVED, AND MAKE, OR HAVE MADE, ANY NECESSARY ADJUSTMENTS IN SUCH STRUCTURES.
   - E. PLACING CONCRETE
     1. SUBGRADE: PLACE CONCRETE ONLY ON A MOIST, COMPACTED SUBGRADE OR BASE FREE FROM LOOSE MATERIAL. PLACE NO CONCRETE ON A MUDDY OR FROZEN SUBGRADE.
     2. FORMS: ALL FORMS SHALL BE FREE FROM WARP, TIGHT ENOUGH TO PREVENT LEAKAGE AND SUBSTANTIAL ENOUGH TO MAINTAIN THEIR SHAPE AND POSITION WITHOUT SPRINGING OR SETTLING, WHEN CONCRETE IS PLACED. FORMS SHALL BE CLEAN AND SMOOTH IMMEDIATELY BEFORE CONCRETING.
     3. PLACING CONCRETE: CONCRETE SHALL BE DEPOSITED SO AS TO REQUIRE AS LITTLE REHANDLING AS PRACTICABLE. WHEN CONCRETE IS TO BE PLACED AT AN ATMOSPHERIC TEMPERATURE OF 35 DEGREES F. OR LESS, PARAGRAPH 702.10 OF THE I.N.D.O.T. SPECIFICATIONS LATEST REVISIONS SHALL BE FOLLOWED.
   - F. CONCRETE CURB
     1. EXPANSION JOINTS: SHALL BE 1/2 INCH THICK PREMOULDED AT ENDS OF ALL RETURNS AND AT A MAXIMUM SPACING OF 100 FEET.
     2. CONTRACTION JOINTS UNLESS OTHERWISE PROVIDED, CONTRACTION JOINTS SHALL BE SAWED JOINTS SPACED 10 FEET ON CENTER.
     3. FINISH: TAMP AND SCREED CONCRETE AS SOON AS PLACED, AND FILL ANY HONEY COMBED PLACES. FINISH SQUARE CORNERSTONE 1/4 INCH RADIUS AND OTHER CORNERS TO RADII SHOWN.
   - G. CONCRETE WALKS AND EXTERIOR STEPS
     1. SLOPES: PROVIDE ¼ INCH PER FOOT CROSS SLOPE. MAKE ADJUSTMENTS ON SLOPES AT WALK INTERSECTIONS AS NECESSARY TO PROVIDE PROPER DRAINAGE.
     2. DIMENSIONS: WALKS AND STEPS SHALL BE ONE COURSE CONSTRUCTION AND OF WIDTHS AND DETAILS SHOWN ON THE DRAWINGS.
     3. FINISH: SCREED CONCRETE AND TROWEL WITH A STEEL TROWEL TO A HARD DENSE SURFACE AFTER SURFACE WATER HAS DISAPPEARED. APPLY MEDIUM BROOM FINISH AND SCRIBE TRANSVERSE JOINTS AT 6 FOOT SPACING. PROVIDE ½ INCH EXPANSION JOINTS WHERE SIDEWALKS INTERSECT, AND AT A MAXIMUM SPACING OF 48 FEET BETWEEN EXPANSION JOINTS.
   - H. CURING CONCRETE FOR WALKS AND CURBS: EXCEPT AS OTHERWISE SPECIFIED, CURE ALL CONCRETE BY ONE OF THE METHODS DESCRIBED IN SECTION 501.17 OF THE I.N.D.O.T. SPECIFICATIONS, LATEST REVISION.
   - I. BITUMINOUS PAVEMENT: HOT MIX ASPHALT PAVEMENT SHALL BE AS SPECIFIED IN SECTION 402 OF THE I.N.D.O.T. SPECIFICATIONS LATEST REVISIONS. PAVING WILL NOT BE PERMITTED DURING UNFAVORABLE WEATHER OR THEN THE TEMPERATURE IS 40 DEGREES F. AND FALLING.
   - J. COMPACTED AGGREGATE SUBBASE: THE THICKNESS SHOWN ON THE DRAWINGS IS THE MINIMUM THICKNESS OF THE FULL COMPACTED SUBBASE. COMPACTION SHALL BE ACCOMPLISHED BY ROLLING WITH A SMOOTH WHEELED ROLLER WEIGHING 8 TO 10 TONS. COMPACT TO 95% COMPACTION USING STANDARD TESTING PROCEDURES. ALONG CURBS, HEADERS AND WALLS AND AT ALL PLACES NOT ACCESSIBLE TO THE ROLLER, THE AGGREGATE MATERIAL SHALL BE TAMPED WITH MECHANICAL TAMPERS OR WITH APPROVED HAND TAMPERS.
   - K. CONCRETE RAMPS
     1. CONCRETE RAMPS FOR THE DISABLED SHALL BE REQUIRED AS SPECIFIED IN THE PLANS AND SHALL CONFORM WITH CURRENT SPECIFICATIONS ESTABLISHED BY THE AMERICAN DISABILITIES ACT (ADA), SECTION 4.7, "CURB RAMPS."
     2. THE CONCRETE RAMP SHALL BE FLUSH AND FREE OF ABRUPT CHANGES WITH SIDEWALKS, GUTTERS OR STREETS, AND PROVIDE A MAXIMUM SLOPE OF 1:12.
     3. THE MINIMUM WIDTH OF A CONCRETE RAMP SHALL BE (48) INCHES EXCLUSIVE OF FLARED SIDES.
     4. SIDES OF CONCRETE RAMPS SHALL HAVE FLARED SIDES AS SHOWN IN THE PLANS.

STORM SEWER SYSTEMS

1. SCOPE OF WORK
   - A. THE WORK UNDER THIS SECTION INCLUDES ALL STORM SEWERS, STORM WATER INLETS, AND RELATED ITEMS, INCLUDING EXCAVATING AND BACKFILLING NECESSARY TO COMPLETE THE WORK SHOWN ON THE DRAWINGS.
   - B. IN THE CASE OF ANY CONFLICTS WITH THESE SPECIFICATIONS AND LOCAL, STATE, FEDERAL SPECIFICATIONS THE MORE STRINGENT SHALL APPLY.
2. STORM SEWER CONSTRUCTION
   - A. STORM SEWERS
     1. STORM SEWER STRUCTURES SHALL COMPLY WITH CURRENT SPECIFICATIONS OF THE CITY OF FRANKLIN PLANNING AND ALL OTHER RESPONSIBLE AGENCIES IN RESPECT TO DESIGN AND QUALITY OF CONSTRUCTION.
     2. ALL STORM SEWER CONSTRUCTION INSIDE PUBLIC RIGHT-OF-WAY, EITHER EXISTING OR TO BE DEDICATED, SHALL BE IN ACCORDANCE WITH THE MOST CURRENT I.N.D.O.T. STANDARD SPECIFICATION.
     3. WHERE REINFORCED CONCRETE PIPE IS SHOWN ON THE CONSTRUCTION PLANS, IT SHALL BE IN ACCORDANCE WITH A.S.T.M. C-76 CLASS III WALL "B" UNLESS OTHERWISE SPECIFIED ON THE PLANS.
     4. WHERE CORRUGATED METAL PIPE IS SHOWN ON THE CONSTRUCTION PLANS, IT SHALL BE 14 GAUGE ALUMINIZED UNLESS OTHERWISE SPECIFIED AND SHALL HAVE THE CONNECTING BANDS AND SEALS AS SPECIFIED BY THE MANUFACTURER. C.M.P. SHALL BE ALUMINIZED PIPE IN ACCORDANCE WITH A.S.T.M. A-444.
     5. MANHOLES, CATCH BASINS AND INLETS SHALL BE PRECAST CONCRETE. USE OF BRICK OR BLOCK WILL NOT BE PERMITTED UNLESS AUTHORIZED IN WRITING BY THE ENGINEER AND APPROVED IN WRITING BY THE CITY OF FRANKLIN PLANNING AND HIGHWAY DEPARTMENTS DRAINAGE PRIOR TO CONSTRUCTION.
        - A. IF THE CONTRACTOR ELECTS TO USE ALTERNATE PRECAST STRUCTURES, HE SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER PRIOR TO ANY CONSTRUCTION.
     6. PRECAST CONCRETE AND STEEL FOR MANHOLES AND INLETS SHALL BE IN ACCORDANCE WITH A.S.T.M. C-478.
     7. CASTINGS SHALL BE AS SHOWN ON THE DETAIL SHEET(S) FOR MANUFACTURER, TYPE AND MODEL NUMBER.
     8. "B" BORROW BACKFILL SHALL BE REQUIRED UNDER ALL PAVEMENT AREAS AND TRENCHES WITHIN FIVE(5) FEET OF THE EDGE OF PAVEMENT.
     9. ALL TRENCHES UNDER PAVEMENT SHALL BE COMPACTED TO 95 PERCENT MODIFIED PROCTOR.
3. APPLICATION
   - A. PERMITS AND CODES: THE INTENT OF THIS SECTION OF THE SPECIFICATIONS IS THAT THE CONTRACTOR'S BID ON THE WORK COVERED HEREIN SHALL BE BASED UPON THE DRAWINGS AND SPECIFICATIONS BUT THAT THE WORK SHALL COMPLY WITH ALL APPLICABLE CODES AND REGULATIONS AS AMENDED BY ANY WAIVERS. THE CONTRACTOR SHALL FURNISH ALL BONDS NECESSARY TO GET PERMITS FOR CUTS AND CONNECTIONS TO EXISTING SEWERS.
   - B. LOCAL STANDARDS: THE TERM "LOCAL STANDARDS" AS USED HEREIN MEANS THE STANDARDS OF DESIGN AND CONSTRUCTION OF THE RESPECTIVE MUNICIPAL DEPARTMENT OR UTILITY COMPANY.
   - C. EXISTING IMPROVEMENTS: THE CONTRACTOR SHALL MAINTAIN IN OPERATING CONDITION ALL ACTIVE UTILITIES, SEWERS AND OTHER DRAINS ENCOUNTERED IN THE SEWER INSTALLATION. THE CONTRACTOR SHALL REPAIR TO THE SATISFACTION OF THE OWNER ANY DAMAGE TO EXISTING ACTIVE IMPROVEMENTS.
   - D. WORKMANSHIP: THIS WORK SHALL CONFORM TO ALL LOCAL, STATE AND NATIONAL CODES AND TO BE APPROVED BY ALL LOCAL AND STATE AGENCIES HAVING JURISDICTION.
   - E. TRENCHING: LAY ALL PIPE IN OPEN TRENCHES, EXCEPT WHEN THE LOCAL AUTHORITY GIVES WRITTEN PERMISSION FOR TUNNELING. OPEN THE TRENCH SUFFICIENTLY AHEAD OF PIPE-LAYING TO REVEAL ANY OBSTRUCTIONS. THE MIN. WIDTH OF TRENCH SHALL BE 1.25 TIMES THE OUTSIDE DIA. OF PIPE. SHEET AND BRACE TRENCH AS NECESSARY TO PROTECT WORKMEN AND ADJACENT STRUCTURES. ALL TRENCHING TO COMPLY WITH OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION STANDARDS. KEEP TRENCHES FREE FROM WATER WHILE CONSTRUCTION IS IN PROGRESS. UNDER NO CIRCUMSTANCES SHALL PIPE OR APPURTENANCES BE LAID IN STANDING WATER. CONDUCT THE DISCHARGE FROM TRENCH DE-WATERING TO DRAINS OR NATURAL DRAINAGE CHANNELS.
   - F. SPECIAL SUPPORTS: WHENEVER, IN THE OPINION OF THE ENGINEER, THE SOIL AT OR BELOW THE PIPE GRADE IS UNSUITABLE FOR SUPPORTING SEWERS AND APPURTENANCES SPECIFIED IN THIS SECTION, SUCH SPECIAL SUPPORT, IN ADDITION TO THOSE SHOWN OR SPECIFIED, SHALL BE PROVIDED AS THE ENGINEER MAY DIRECT, AND THE CONTRACT WILL BE ADJUSTED.
   - G. BACKFILLING: BACKFILL SHALL BE PLACED AS SHOWN IN THE PLANS. NOTE THAT PVC & HDPE PIPE SHALL BE COVERED WITH 12" MINIMUM OF #8 STONE. COMPACT THIS BACKFILL THOROUGHLY, TAKING CARE NOT TO DISTURB THE PIPE. BACKFILL UNDER AND WITHIN 5 FEET OF WALKS, PARKING AREAS, DRIVEWAYS AND STREETS SHALL BE "B" BORROW OR EQUIVALENT GRANULAR MATERIAL ONLY AND THOROUGHLY COMPACTED BY APPROVED METHODS.
   - H. MANHOLE INVERTS: CONSTRUCT MANHOLE FLOW CHANNELS OF CONCRETE SEWER PIPE OR BRICK, SMOOTHLY FINISHED AND OF SEMICIRCULAR SECTION CONFORMING TO THE INSIDE DIAMETER OF THE CONNECTING SEWERS. MAKE CHANGES IN SIZE OR GRADE GRADUALLY AND CHANGES INDIRECTION BY TRUE CURVES. PROVIDE SUCH CHANNELS FOR ALL CONNECTING SEWERS AT EACH MANHOLE.
   - I. SUBDRAINS: ALL SUBDRAINS SHALL BE OF THE SIZE SHOWN ON THE PLANS AND SHALL BE CONSTRUCTED TO THE GRADES SHOWN. ALL DRAINS CONSTRUCTED OFF-SITE AS PART OF THE OUTLET DRAIN WILL BE LOCATED AS SHOWN.
   - J. UTILITIES: IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERITY ALL EXISTING UTILITIES AND CONDITIONS PERTAINING TO HIS WORK. IT SHALL ALSO BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE OWNERS OF THE VARIOUS UTILITIES BEFORE WORK IS STARTED. THE CONTRACTOR SHALL NOTIFY IN WRITING THE OWNER AND THE ENGINEER OF ANY CHANGES, ERRORS OR OMISSIONS FOUND ON THESE PLANS OR IN THE FIELD BEFORE WORK IS STARTED OR RESUMED.

WATER LINE SYSTEM

1. SCOPE OF WORK
   - A. THE WORK UNDER THIS SECTION INCLUDES ALL WATER MAIN, FIRE HYDRANTS, SERVICES AND RELATED ITEMS, INCLUDING EXCAVATING AND BACKFILLING NECESSARY TO COMPLETE THE WORK SHOWN ON THE DRAWINGS.
2. MATERIALS
   - A. ALL MATERIALS SHALL CONFORM TO ALL LOCAL, STATE, AND NATIONAL CODES AND SHALL BE APPROVED BY ALL LOCAL AND STATE AGENCIES HAVING JURISDICTION. ALL C-900 PVC WATER MAIN SHALL BE DR-14 CLASSIFICATION.
3. APPLICATION
   - A. PERMITS AND CODES: THE INTENT OF THIS SECTION OF THE SPECIFICATIONS IS THAT THE CONTRACTOR'S BID ON THE WORK COVERED HEREIN SHALL BE BASED UPON THE DRAWINGS AND SPECIFICATIONS BUT THAT THE WORK SHALL COMPLY WITH ALL APPLICABLE CODES AND REGULATIONS AS AMENDED BY ANY WAIVERS. THE CONTRACTOR SHALL FURNISH ALL BONDS NECESSARY TO GET PERMITS FOR CUTS AND CONNECTIONS TO EXISTING WATER MAINS.
   - B. LOCAL STANDARDS: THE TERM "LOCAL STANDARDS" AS USED HEREIN MEANS THE STANDARDS OF DESIGN AND CONSTRUCTION OF THE RESPECTIVE MUNICIPAL DEPARTMENT OR UTILITY COMPANY.
   - C. EXISTING IMPROVEMENTS: THE CONTRACTOR SHALL MAINTAIN IN OPERATING CONDITION ALL ACTIVE UTILITIES, SEWERS AND OTHER DRAINS ENCOUNTERED IN THE WATER LINE INSTALLATION. THE CONTRACTOR SHALL REPAIR TO THE SATISFACTION OF THE OWNER ANY DAMAGE TO EXISTING ACTIVE IMPROVEMENTS.
   - D. WORKMANSHIP: THIS WORK SHALL CONFORM TO ALL LOCAL, STATE AND NATIONAL CODES AND TO BE APPROVED BY ALL LOCAL AND STATE AGENCIES HAVING JURISDICTION. THIS INCLUDES ALL REQUIRED CLEANING AND TESTING PROCEDURES REQUIRED BY THE STATE AND LOCAL AGENCIES.
   - E. TRENCHING: LAY ALL PIPE IN OPEN TRENCHES, EXCEPT WHEN THE LOCAL AUTHORITY GIVES WRITTEN PERMISSION FOR TUNNELING. OPEN THE TRENCH SUFFICIENTLY AHEAD OF PIPE-LAYING TO REVEAL ANY OBSTRUCTIONS. THE MIN. WIDTH OF TRENCH SHALL BE 1.25 TIMES THE OUTSIDE DIA. OF PIPE. SHEET AND BRACE TRENCH AS NECESSARY TO PROTECT WORKMEN AND ADJACENT STRUCTURES. ALL TRENCHING TO COMPLY WITH OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION STANDARDS. KEEP TRENCHES FREE FROM WATER WHILE CONSTRUCTION IS IN PROGRESS. UNDER NO CIRCUMSTANCES SHALL PIPE OR APPURTENANCES BE LAID IN STANDING WATER. CONDUCT THE DISCHARGE FROM TRENCH DE-WATERING TO DRAINS OR NATURAL DRAINAGE CHANNELS.
   - F. SPECIAL SUPPORTS: WHENEVER, IN THE OPINION OF THE ENGINEER, THE SOIL AT OR BELOW THE PIPE GRADE IS UNSUITABLE FOR SUPPORTING PIPE AND APPURTENANCES SPECIFIED IN THIS SECTION, SUCH SPECIAL SUPPORT, IN ADDITION TO THOSE SHOWN OR SPECIFIED, SHALL BE PROVIDED AS THE ENGINEER MAY DIRECT, AND THE CONTRACT WILL BE ADJUSTED.
   - G. BACKFILLING: BACKFILL SHALL BE PLACED AS SHOWN IN THE PLANS. NOTE THAT PVC & HDPE PIPE SHALL BE COVERED WITH 12" MINIMUM OF #8 STONE. COMPACT THIS BACKFILL THOROUGHLY, TAKING CARE NOT TO DISTURB THE PIPE. BACKFILL UNDER AND WITHIN 5 FEET OF WALKS, PARKING AREAS, DRIVEWAYS AND STREETS SHALL BE "B" BORROW OR EQUIVALENT GRANULAR MATERIAL ONLY AND THOROUGHLY COMPACTED BY APPROVED METHODS.
   - H. UTILITIES: IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL EXISTING UTILITIES AND CONDITIONS PERTAINING TO HIS WORK. IT SHALL ALSO BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE OWNERS OF THE VARIOUS UTILITIES BEFORE WORK IS STARTED. THE CONTRACTOR SHALL NOTIFY IN WRITING THE OWNER AND THE ENGINEER OF ANY CHANGES, ERRORS OR OMISSIONS FOUND ON THESE PLANS OR IN THE FIELD BEFORE WORK IS STARTED OR RESUMED.

SANITARY SEWER SYSTEMS

1. SCOPE OF WORK
   - A. THE WORK UNDER THIS SECTION INCLUDES ALL SANITARY SEWERS, MANHOLES, CLEANOUTS AND RELATED ITEMS INCLUDING EXCAVATING AND BACKFILLING, NECESSARY TO COMPLETE THE WORK SHOWN IN THE DRAWINGS, STARTING OUTSIDE THE BUILDING WALLS. THE END OF SEWERS SHALL BE TIGHTLY PLUGGED OR CAPPED AT THE TERMINAL POINTS, ADJACENT TO THE BUILDING DRAIN AS SPECIFIED IN THE PLUMBING SPECIFICATIONS AND/OR ARCHITECTURAL DRAWINGS.
2. MATERIALS
   - A. SANITARY SEWERS
     1. ALL GRAVITY PLASTIC SEWER PIPE FITTINGS SHALL CONFORM TO ASTM D3034 WITH A CELL CLASSIFICATION OF 12454-B OR 12454-C. FLEXIBLE GASKETED COMPRESSION JOINTS SHALL BE USED FOR PVC & PVC TRUSS PIPE. NO SOLVENT CEMENT JOINTS SHALL BE ALLOWED.
     2. ABS SEWER PIPE AND FITTINGS SHALL CONFORM TO ASTM D2680 LATEST REVISION.
     3. TRACER WIRE SHALL BE INSTALLED WITH ALL NEW SANITARY PIPE.
   - B. MANHOLES
     1. PRECAST REINFORCED CONCRETE MANHOLE SECTIONS AND STEPS SHALL CONFORM TO ASTM C-478 LATEST REVISION. EXTERIOR OF THE MANHOLE SHALL BE WATERPROOFED WITH BISMATIC MATERIAL.
     2. CASTINGS SHALL BE OF UNIFORM QUALITY, FREE FROM BLOW HOLES, POROSITY, HARD SPOTS, SHRINKAGE DISTORTION OR OTHER DEFECTS. THEY SHALL BE SMOOTH AND WELL-CLEANED BY SHOT-BLASTING OR BY SOME OTHER APPROVED METHOD. THEY SHALL BE COATED WITH ASPHALT PAINT WHICH SHALL RESULT IN A SMOOTH COATING, TOUGH AND TENACIOUS WHEN COLD, NOT TACKY OR BRITTLE. THEY SHALL BE GRAY IRON MEETING ASTM A-48 LATEST REVISION. MANHOLE COVERS FOR SANITARY SEWER SHALL BE NEENAH TYPE R-1722 W/R-1712-B-SP FRAME W/SELF-SEALING APPLICATION.
     3. JOINTS: MANHOLE SECTIONS SHALL BE JOINED WITH A NOMINAL ½ INCH SIZE BUTYL RUBBER BASE GASKET MATERIAL, CONFORMING TO AASHTO M-198 AND FEDERAL SPECIFICATION SS-S-210A. JOINT CONFORMS TO ASTM C-443.
     4. MANHOLES SHALL INCLUDE STEPS. SANITARY SEWER STANDARDS REVISIONS SHALL BE THAT STEPS ARE TO BE POLYPROPYLENE COATED STEEL REINFORCING OR AN APPROVED NON-CORROSIVE FIBERGLASS MATERIAL. THE COPOLYMER POLYPROPYLENE SHALL MEET THE REQUIREMENTS OF ASTMD-4101 WITH DEFORMED 3/8 INCH DIAMETER OR LARGER REINFORCING STEEL CONFORMING TO ASTM A-615, GRADE 60. STEPS SHALL BE A MAXIMUM OF 24 INCHES FROM TOP, 24 INCHES FROM BOTTOM AND 16 INCHES SPACING BETWEEN.
   - C. SANITARY FORCE MAINS
     1. ALL SANITARY FORCE MAIN PIPE AND FITTINGS SHALL CONFORM TO ASTM D2241, STANDARD SPECIFICATION FOR POLY VINYL CHLORIDE (PVC) PRESSURE-RATED PIPE, (SDR 21, GREATER THAN 4 INCH DIAMETER).
     2. TRACER WIRE SHALL BE INSTALLED WITH ALL SANITARY FORCE MAIN PIPE.
   - D. CASING
     1. SANITARY SEWERS CONSTRUCTED WITH POLYVINYL CHLORIDE (PVC) AND INSTALLED UNDER RAILROADS SHALL BE CASED IN CONFORMANCE WITH AWWA STANDARD C900-89, STANDARD FOR POLYVINYL CHLORIDE (PVC) PRESSURE PIPE, 4 IN. THROUGH 12 IN. FOR WATER DISTRIBUTION, APPENDIX A.
3. APPLICATION
   - A. PERMITS AND CODES:
     THE INTENT OF THIS SECTION OF THE SPECIFICATIONS IS THAT THE CONTRACTOR'S BID ON THE WORK COVERED HEREIN SHALL BE BASED UPON THE DRAWINGS AND SPECIFICATIONS BUT THAT THE WORK SHALL COMPLY WITH ALL APPLICABLE CODES AND REGULATIONS AS AMENDED BY ANY WAIVERS. CONTRACTOR SHALL FURNISH ALL BONDS NECESSARY TO GET PERMITS FOR CUTS AND CONNECTIONS TO EXISTING SEWERS.
   - B. LOCAL STANDARDS:
     THE TERM "LOCAL STANDARDS" AS USED HEREIN MEANS THE STANDARDS OF DESIGN AND CONSTRUCTION OF THE RESPECTIVE MUNICIPAL DEPARTMENT OR UTILITY COMPANY.
   - C. EXISTING IMPROVEMENTS:
     THE CONTRACTOR SHALL MAINTAIN IN OPERATING CONDITION ALL ACTIVE UTILITIES, SEWERS AND OTHER DRAINS ENCOUNTERED IN THE SEWER INSTALLATION. THE CONTRACTOR SHALL REPAIR TO THE SATISFACTION OF THE OWNER ANY DAMAGE TO EXISTING ACTIVE IMPROVEMENTS.
   - D. WORKMANSHIP:
     THIS WORK SHALL CONFORM TO ALL LOCAL, STATE AND NATIONAL CODES AND TO BE APPROVED BY ALL LOCAL AND STATE AGENCIES HAVING JURISDICTION.
   - E. TRENCHING:
     LAY ALL PIPE IN OPEN TRENCHES, EXCEPT WHEN THE LOCAL AUTHORITY GIVES WRITTEN PERMISSION FOR TUNNELING. OPEN THE TRENCH SUFFICIENTLY AHEAD OF PIPE-LAYING TO REVEAL ANY OBSTRUCTIONS. THE MIN. WIDTH OF TRENCH SHALL BE 1.25 TIMES THE OUTSIDE DIA. PLUS 12 INCHES. SHEET AND BRACE TRENCH AS NECESSARY TO PROTECT WORKMEN AND ADJACENT STRUCTURES. ALL TRENCHING TO COMPLY WITH OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION STANDARDS. KEEP TRENCHES FREE FROM WATER WHILE CONSTRUCTION IS IN PROGRESS. UNDER NO CIRCUMSTANCES SHALL PIPE OR APPURTENANCES BE LAID IN STANDING WATER. CONDUCT THE DISCHARGE FROM TRENCH DE-WATERING TO DRAINS OR NATURAL DRAINAGE CHANNELS.
   - F. SPECIAL SUPPORTS:
     WHENEVER, IN THE OPINION OF THE ENGINEER, THE SOIL AT OR BELOW THE PIPE GRADE IS UNSUITABLE FOR SUPPORTING SEWERS AND APPURTENANCES SPECIFIED IN THIS SECTION, SUCH SPECIAL SUPPORT, IN ADDITION TO THOSE SHOWN OR SPECIFIED, SHALL BE PROVIDED AS THE ENGINEER MAY DIRECT, AND THE CONTRACT WILL BE ADJUSTED.
   - G. BACKFILLING:
     BACKFILL SHALL BE PLACED AS SHOWN IN THE PLANS. COMPACT THIS BACKFILL THOROUGHLY, TAKING CARE NOT TO DISTURB THE PIPE. BACKFILL UNDER AND WITHIN 5 FEET OF WALKS, PARKING AREAS, DRIVEWAYS AND STREETS SHALL BE GRANULAR MATERIAL ONLY AND THOROUGHLY COMPACTED BY APPROVED METHODS.
   - H. FLOW CHANNELS:
     THE FLOW CHANNELS WITHIN MANHOLES SHALL BE AN INTEGRAL PART OF THE PRECAST BASE. THE CHANNELS SHALL BE SHAPED AND FORMED FOR A CLEAN TRANSITION WITH PROPER HYDRAULICS TO ALLOW THE SMOOTH CONVEYANCE OF FLOW THROUGH THE MANHOLE. THE BENCH WALL SHALL BE FORMED TO THE CROWN OF THE INLET AND OUTLET PIPES TO FORM A "U" SHAPED CHANNEL. THE BENCH WALL SHALL SLOPE BACK FROM THE CROWN AT ½ INCH PER FOOT TO THE MANHOLE WALL.
   - I. LEAKAGE TESTING:
     THE CONTRACTOR SHALL FURNISH THE NECESSARY EQUIPMENT TO TEST SEWERS FOR INFILTRATION. ALL SANITARY SEWER GRAVITY LINES, UPON COMPLETION, SHALL BE REQUIRED TO PASS ONE OF THE FOLLOWING TESTS:
   - J. HYDROSTATIC TEST:
     A HYDROSTATIC TEST SHALL BE PERFORMED WITH A MINIMUM OF TWO (2) FEET OF POSITIVE HEAD. THE RATE OF EXFILTRATION OR INFILTRATION SHALL NOT EXCEED TWO HUNDRED (200) GALLONS PER INCH OF PIPE DIAMETER PER LINEAR MILE PER DAY.
   - K. LOW PRESSURE AIR TEST:
     A LOW PRESSURE AIR TEST SHALL BE CONDUCTED IN ACCORDANCE WITH ASTM F1417, STANDARD TEST METHOD FOR INSTALLATION ACCEPTANCE OF PLASTIC GRAVITY SEWER LINES USING LOW PRESSURE AIR, FOR PLASTIC PIPE.
   - L. ALL SANITARY FORCE MAIN LINES, UPON COMPLETION, SHALL BE REQUIRED TO PASS A LEAKAGE TEST CONDUCTED IN ACCORDANCE WITH AWWA STANDARD C605-94, AWWA STANDARD FOR UNDERGROUND INSTALLATION OF POLYVINYL CHLORIDE (PVC) PRESSURE PIPE AND FITTINGS FOR WATER.
   - M. ALL SANITARY SEWER MANHOLES SHALL ALSO BE AIR TESTED IN ACCORDANCE WITH ASTM C1244-93, STANDARD TEST METHOD FOR CONCRETE SEWER MANHOLES BY NEGATIVE AIR PRESSURE (VACUUM) TEST.
   - N. FLUSHING SEWERS:
     FLUSH ALL SANITARY SEWERS EXCEPT BUILDING SEWERS WITH WATER TO OBTAIN FREE FLOW THROUGH EACH LINE. REMOVE ALL SILT AND TRASH FROM APPURTENANCES JUST PRIOR TO ACCEPTANCE OF WORK.
   - O. PLASTIC SEWER PIPE INSTALLATION:
     PLASTIC SEWER PIPE SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321 PER LATEST REVISION. PIPES SHALL BE TESTED AFTER THIRTY DAYS, USING A MANDREL THAT IS 95% OF THE INSIDE DIAMETER OF THE PIPE BEING TESTED. SAID MANDREL SHALL BE PULLED BY HAND THROUGH EACH PIPE SECTION TO ENSURE DEFLECTION IS LESS THAN ACCEPTABLE LIMITS.
   - P. STORM WATER CONNECTIONS:
     NO ROOF DRAINS, FOOTING DRAINS AND/OR SURFACE WATER DRAINS MAY BE CONNECTED TO THE SANITARY SEWER SYSTEMS, INCLUDING TEMPORARY CONNECTIONS DURING CONSTRUCTION.
   - Q. WATERLINE CROSSING:
     WHERE WATER LINES AND SANITARY SEWERS CROSS AND WATER LINES CANNOT BE PLACED ABOVE THE SEWER WITH A MINIMUM OF 18 INCHES VERTICAL CLEARANCE, THE SEWER MUST BE CONSTRUCTED OF WATER WORKS GRADE DUCTILE IRON PIPE WITH MECHANICAL JOINTS WITHIN 10 FEET OF THE WATER LINE.
   - R. UTILITIES:
     IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERITY ALL EXISTING UTILITIES AND CONDITIONS PERTAINING TO HIS WORK. IT SHALL ALSO BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE OWNERS OF THE VARIOUS UTILITIES BEFORE WORK IS STARTED. THE CONTRACTOR SHALL NOTIFY IN WRITING THE OWNER AND THE ENGINEER OF ANY CHANGES, ERRORS OR OMISSIONS FOUND ON THESE PLANS OR IN THE FIELD BEFORE WORK IS STARTED OR RESUMED.
   - S. SERVICE LATERALS:
     INDIVIDUAL BUILDING LINES SHALL BE 6 INCHES IN DIAMETER AND OF MATERIAL EQUAL TO THAT SPECIFIED IN 2A OF THIS SECTION. SERVICE LINES SHALL BE CONNECTED TO THE MAIN SEWER AT LOCATIONS SHOWN IN THESE PLANS.

CROSSROAD ENGINEERS, PC
Transportation & Development Consultants
115 N. 17th AVENUE, BEECH GROVE, IN 46107 (317) 780-1555

SPECIFICATIONS

WINDSOR AT HILLVIEW - SECTION 3

JOB No.	.	DRAWN	KLF/LMC/DEP
CHECKED	TEN	DATE	NOVEMBER 3, 2022
DESIGNED	DJM	APPR.	GJI

GREGORY J. ILKO
REGISTERED No. 10300059
STATE OF INDIANA
PROFESSIONAL ENGINEER
PRELIMINARY NOT FOR CONSTRUCTION

NO.	DATE	REVISIONS	BY	APPR.
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SHEET 1200

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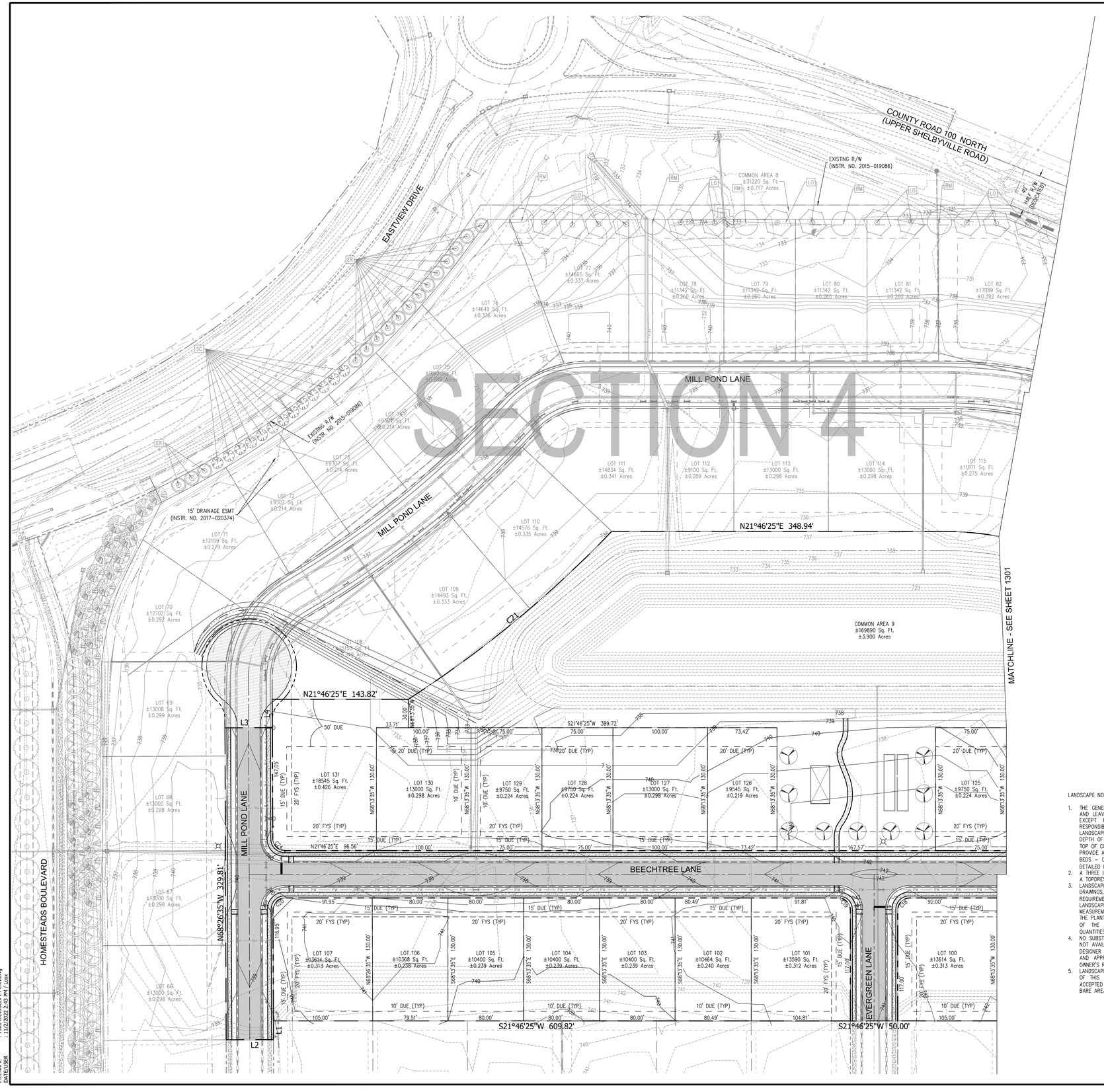

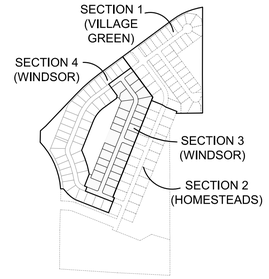

KEYMAP
NOT TO SCALE

Indiana811
Know what's below. Call before you dig.
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CALL 2 WORKING DAYS BEFORE YOU DIG
1-800-382-5544 or 811
CALL TOLL FREE
PER INDIANA STATE LAW IC-69-1991, IT IS AGAINST THE LAW TO EXCAVATE WITHOUT NOTIFYING THE UNDERGROUND LOCATION SERVICE TWO (2) WORKING DAYS BEFORE COMMENCING WORK.

50 0 50 100
SCALE: 1" = 50'

THESE PLANS ARE BASED UPON INFORMATION FROM AN ALTA/ACSM LAND TITLE SURVEY PERFORMED BY CKW LAND SURVEYING, INC. WITH WORK ORDER NO. 130100 AND DATED JUNE 7, 2013 AND SURVEY INFORMATION PROVIDED BY JERRY WIGGINS SURVEYING.

LANDSCAPE NOTES:

1. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR REMOVING ALL VEGETATION AND LEAVING ALL LANDSCAPE AREAS AT TWO INCHES BELOW FINAL GRADE, EXCEPT FOR THE DETENTION POND AREA; GENERAL CONTRACTOR IS RESPONSIBLE FOR BRINGING THE POND AREA TO FINAL GRADE. THE LANDSCAPE CONTRACTOR WILL PROVIDE AND SPREAD A COMPACTED TWO INCH DEPTH OF LOAMY TOPSOIL IN ALL TURF AREAS – BRINGING THESE AREAS TO TOP OF CURB/FINAL GRADE (COMPACTED). THE LANDSCAPE CONTRACTOR WILL PROVIDE AND INSTALL A FOUR INCH DEPTH OF PLANTING MIX TO ALL PLANTING BEDS – CROWNING FOR PROPER DRAINAGE. (SEE SPECIFICATIONS FOR MORE DETAILED INSTRUCTION ON TURF AREA AND PLANTING BED PREPARATION.)
2. A THREE INCH DEPTH OF SHREDDED HARDWOOD BARK MULCH WILL BE USED AS A TOPDRESSING FOR ALL PLANTING BEDS AND TREE RINGS.
3. LANDSCAPE CONTRACTOR SHALL MAKE OWN PLANT QUANTITY TAKEOFFS USING DRAWINGS, SPECIFICATIONS AND PLANT SCHEDULE. PLANT SCHEDULE REQUIREMENTS (I.E. SPACING) DICTATE, UNLESS OTHERWISE DIRECTED BY THE LANDSCAPE DESIGNER. LANDSCAPE CONTRACTOR TO VERIFY BED MEASUREMENTS AND INSTALL APPROPRIATE QUANTITIES AS GOVERNED BY THE THE PLANT SPACING PER THE SCHEDULE. ENSURE ALL MINIMUM REQUIREMENTS OF THE LOCAL GOVERNING AUTHORITY ARE MET (I.E. MINIMUM PLANT QUANTITIES.)
4. NO SUBSTITUTIONS OF PLANT MATERIALS WILL BE ALLOWED. IF PLANTS ARE NOT AVAILABLE, THE LANDSCAPE CONTRACTOR SHALL NOTIFY THE LANDSCAPE DESIGNER IN WRITING (VIA PROPER CHANNELS). PLANTS MAY BE INSPECTED AND APPROVED OR REJECTED ON THE JOBSITE BY THE OWNER OR THE OWNER'S REPRESENTATIVE.
5. LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR THE LANDSCAPE MAINTENANCE OF THIS PROJECT UNTIL FINAL ACCEPTANCE. TURF AREAS WILL NOT BE ACCEPTED UNTIL THEY AREA AT A MINIMUM OF 1-1/2 INCHES TALL, AND NO BARE AREAS LARGER THAN 12 SQUARE INCHES.

LANDSCAPE LEGEND

SMALL TREES
- SNOWDRIFT CRABAPPLE [SC] — MALUS 'SNOWDRIFT' — 2-1/2" CALIPER
- EASTERN REDBUD [ER] — CERCIS CANADENSIS — 2-1/2" CALIPER

LARGE TREES
- 'RED SUNSET' RED MAPLE [RM] — ACER RUBRUM 'RED SUNSET' — 2-1/2" CALIPER
- LAUREL OAK [LO] — QUERCUS HEMISPHAERICA — 2-1/2" CALIPER

EVERGREEN DESIGN GROUP
Landscape Designers & Consultants
(800) 680 6630
379 IH-30, Ste 123
Rockwall, TX 75087
www.evergreendesigngroup.net

PRELIMINARY - NOT FOR CONSTRUCTION

CROSSROAD ENGINEERS, PC
Transportation & Development Consultants
115 N. 17th AVENUE, SUITE 200, BEECH GROVE, IN 46107 (317) 780-1555

SHEET 1300

LANDSCAPE PLAN

WINDSOR AT HILLVIEW - SECTION 3

JOB No.	.	DRAWN	KLF/JMC/DEP	CHECKED	TEN	APPR.	GJI
DATE	NOVEMBER 3, 2022	DESIGNED	DJM				

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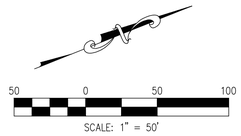

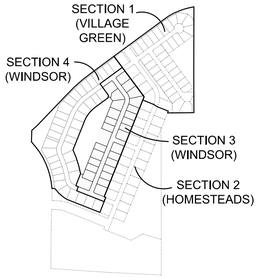

KEYMAP
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SHEET 1301

LANDSCAPE PLAN

WINDSOR AT HILLVIEW - SECTION 3

JOB No.	.	DRAWN	KLF/JMC/DEP	CHECKED	TEN
DATE	NOVEMBER 3, 2022	DESIGNED	DJM	APPR.	GJI

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LANDSCAPE PLANTING SPECIFICATIONS

QUALIFICATIONS OF LANDSCAPE CONTRACTOR

1. The landscaping shall be performed by a single firm specializing in landscape planting.
2. A list of successfully completed projects of this type, size and nature may be requested by the Owner for further qualification measures.
3. The Landscape Contractor must hold a valid Nursery and Floral Certificate issued by the Indiana Department of Agriculture, as well as operate under a Commercial Pesticide Applicator License - issued by either the Indiana Department of Agriculture or the Indiana Structural Pest Control Board.

SCOPE OF WORK

1. Work covered by these sections includes the furnishing of any paying for all materials, labor, services, equipment, licenses, taxes and any other items that are necessary for the execution, installation and completion of all work, specified herein and / or shown on the Landscape Plan.
2. All work shall be performed in accordance with all applicable laws, codes and regulations required by authorities having jurisdiction over such work and provide all inspections and permits required by federal, state and local authorities in supply, transportation and installation of materials.
3. The Landscape Contractor is responsible for the verification of all underground utility lines (telephone, gas, water, electrical, cable, television, etc...) prior to the start of any work.

PLANT MATERIALS

1. Provide plants typical of their species or variety, with normal, densely developed branches and vigorous, fibrous root systems.
2. Provide only sound, healthy, vigorous plants free from defects, disfiguring knots, sunscald injuries, frost cracks, abrasions of the bark, plant disease, insect eggs, borers and all other forms of infestation.
3. All plants shall be balled and burlapped or container grown as specified. No container grown stock will be accepted if it is root bound. All root wrapping material made of synthetics shall be removed at time of planting.
4. All material shall conform to the guidelines established by the American Association of Nurseryman.
5. Cracked or mushroomed rootballs are not acceptable.
6. Caliper measurement for standard (single trunk) trees shall be taken as follows: Six inches above the natural grade line for trees up to and including four inches in caliper; and twelve inches above the natural grade line for trees exceeding four inches in caliper - unless specified differently on the Landscape Plan.
7. Multi-trunk trees shall be measured by their overall planted height.

PRODUCTS

1. All manufactured products will be new.
2. Topsoil: A friable, loamy topsoil (or silty sand) with minimal clay clods.
3. Planting Mix: An equal part mixture of topsoil, sand and compost.
4. Starter Fertilizer: A 13-13-13 ratio with 25% scu, 5% sulfur, 2% iron and additional micronutrients.
5. Pre-Emergence: Any granular, non-staining pre-emergence that is labeled for the specific ornamentals or turf it will be utilized on. A pre-emergence herbicide is to be applied per the manufacturer's labeled rates.
6. Mulch: As specified on the planting plan - well decomposed.
7. Steel Edging: Professional steel edging, 14 gauge thick x 4 inches wide factory painted dark green. Acceptable manufacturers include Col-Met or approved equal.
8. Weed Barrier: A 5 ounce, woven, needle-punched fabric. Acceptable product includes DeWitt' Pro 5, or approved equal.
9. Tree Stakes: 6' green metal t-posts
10. Tree Chain: 1" wide plastic tree chain

TREE PLANTING

1. Tree holes shall be excavated to a width of two times the width of the rootball, and to a depth equal to the depth of the rootball (less two inches).
2. Scarify the sides and bottom of the tree hole prior to the placement of the tree. Remove any glazing that may have been caused during the excavation of the hole.
3. Install the tree so the top of the rootball is one to two inches above the surrounding grade.
4. Backfill the tree hole utilizing the existing topsoil from on-site. Clay, rocks and other debris shall be removed from the soil prior to the backfill. Should additional soil be required to accomplish this task, import additional topsoil from off-site, add no additional cost to the Owner.
5. The total number of tree stakes (beyond the minimum's listed below) will be left to the Landscape Contractor's discretion. Should any trees fall or lean, it will be the responsibility of the Landscape Contractor to straighten the tree, or replace it should it become damaged. Tree staking will consists of, at a minimum:

15 - 30 gal Trees	(2) Stakes per Tree
45 - 100 gal Trees	(3) Stakes per Tree
Multi-Trunk Trees	No Minimum

6. Upon completion of the planting, an earth watering basin will be constructed around the tree. The interior of the tree ring will then be covered with the weed barrier cloth, and topdressed with a three inch layer of mulch.

SHRUB AND GROUNDCOVER PLANTING

1. Upon approval of the grade left by the General Contractor, the Landscape Contractor will rototill the proposed bed locations (BEFORE adding the imported soil). A four inch depth of the specified planting mix will then be evenly spread over the designated bed area. The planting bed will then be rototilled AGAIN , and a pre-emerence and starter fertilizer will be applied.
2. The planting bed will then be hand raked smooth and crowned for proper drainage.
3. Dig the hold twice as wide as the plant's rootball. Install the plant in the hole. Backfill around the plant.
4. Install the weed barrier cloth, overlapping it at the ends. Utilize steel staples to keep the weed barrier cloth in place.
5. A two inch depth of mulch will then be installed as a top dressing, covering the entire planting area.

TURF AREA PREPARATION

1. The General Contractor will leave all turf areas (excluding the detention ponds) at two (2) inches below final grade. The Landscape Contractor shall import and spread a compacted two inch depth of loamy topsoil - ensuring the soil is compacted.
2. Landscape Contractor will ensure all areas are crowned for proper drainage
3. Apply the starter fertilizer.

SODDING

1. Sod variety to be as specified on the Landscape Plan.
2. Lay sod within 24 hours from the time of stripping. Do not lay if the ground is frozen.
3. Lay the sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod strips - do not overlap. Stagger strips to offset joints in adjacent courses.
4. Water the sod thoroughly with a fine spray immediately after planting to obtain at least six inches of penetration into the soil below the sod.
5. Roll the sod to ensure good contact of the sod's root system with the soil underneath.

HYDROMULCHING

1. The hydromulch mix (per 1,000 sf) shall be as follows:

35#	Cellulose Fiber Mulch
2#	Fescue Seed
1#	Annual Rye Seed
10#	15-15-15 Water Soluble Fertilizer

CLEAN UP

1. During landscape preparation and planting, keep all pavement clean and all work areas in a neat, orderly condition.
2. All excavated materialswill be disposed of legally off the project site.

INSPECTION AND ACCEPTANCE

1. Upon completion of the work, provide the site clean and free of materials and suitable fro use as intended.
2. When the planting work is completed, the Owner will make an inspection to determine acceptability.
3. When the inspected planting work does not comply with the contract documents, replace the rejected work within 24 hours.
4. Landscape maintenance will continue until re-inspected by the Owner and found to be acceptable. Once acceptable, Final Acceptance will be issued, and the required maintenance period will commence.

LANDSCAPE MAINTENANCE

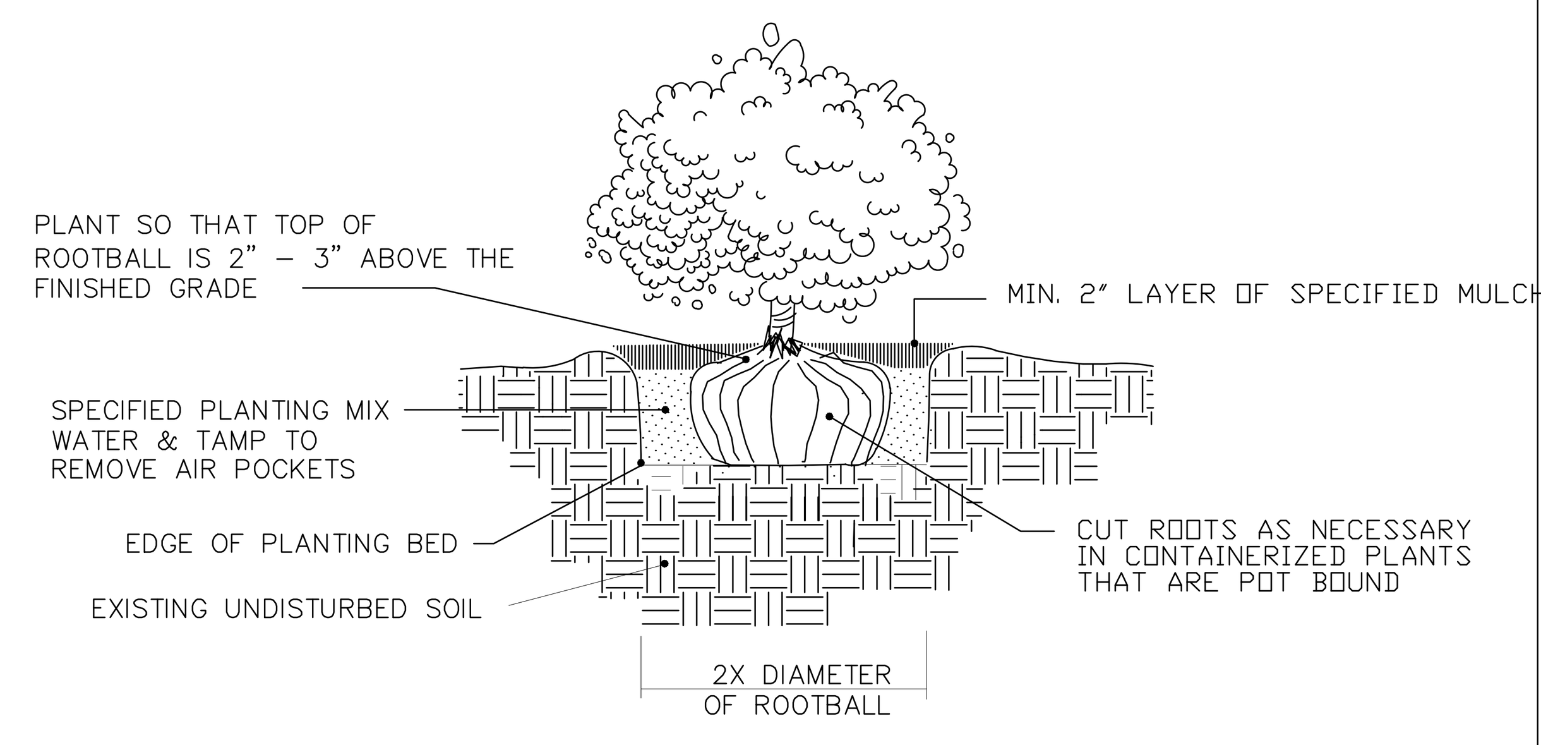
1. The maintenance period shall commence once Final Acceptance has been issued by the Owner, and shall continue for a period of ninety (90) days.
2. The monitoring and scheduling of the irrigation system will be the responsibility of the Landscape Contractor during this time. Coordinate all scheduling and any access requirements with the Owner.
3. Landscape maintenance shall include, but not be limited to: WEEKLY SITE VISITS FOR mowing, edging, blowing, weeding, trimming, pruning, fertilizing, weed control, insect control, disease control, re-staking, re-setting of plants to their proper grade or their upright position, and any other means to keep the plantings healthy, free of insects and diseases, and in a continual thriving condition.

WARRANTY PERIOD, PLANT GUARANTEE AND REPLACEMENTS

1. Plant materials supplied shall be warrantied to remain alive and healthy for a period of twelve (12) months after the date of Final Acceptance by Owner {seasonal annuals for 90 days from Final Acceptance}. Plants in an impaired, dead or dying condition after initial acceptance or within the warranty period shall be removed and replaced immediately to the satisfaction of the Owner.

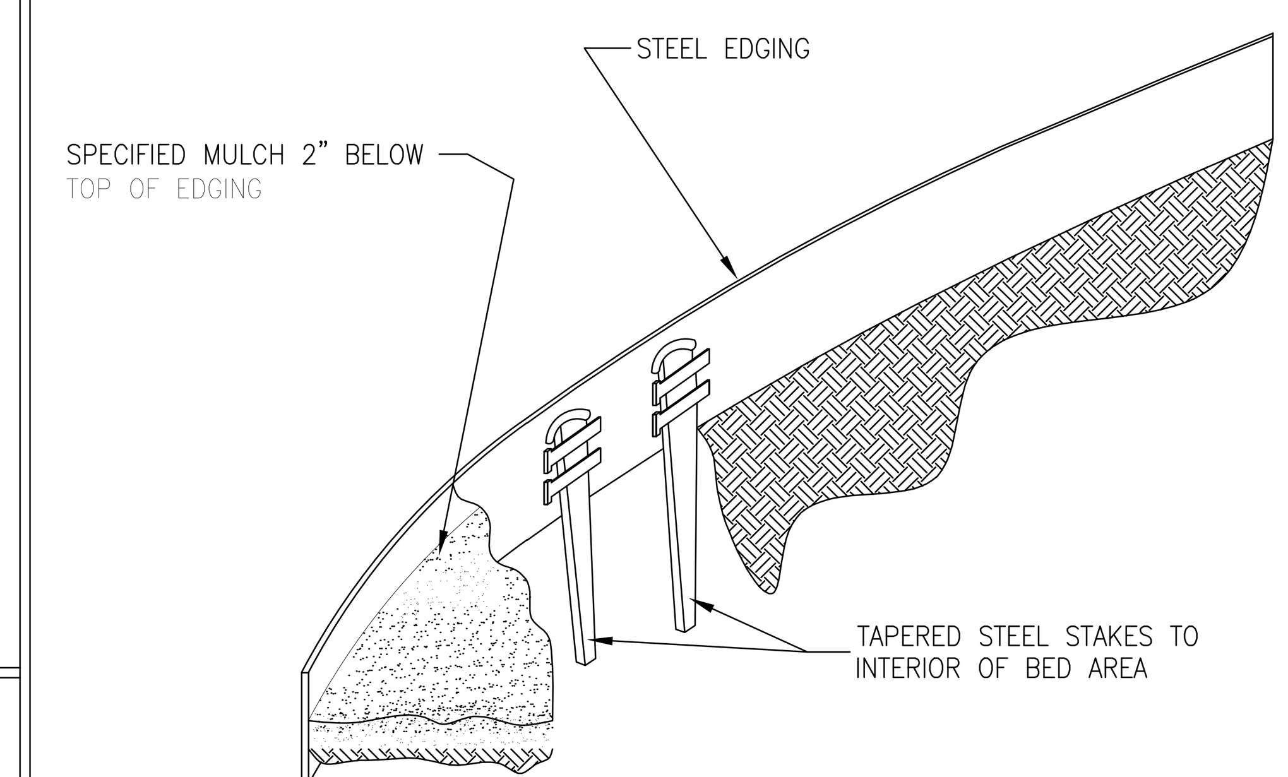
RECORD DRAWINGS

1. Provide a minimum of (2) copies of record drawings to the Owner upon completion of work. A record drawing is a record of all changes that occurred in the field and that are documented through change orders, addenda, or contractor/consultant drawing markups.



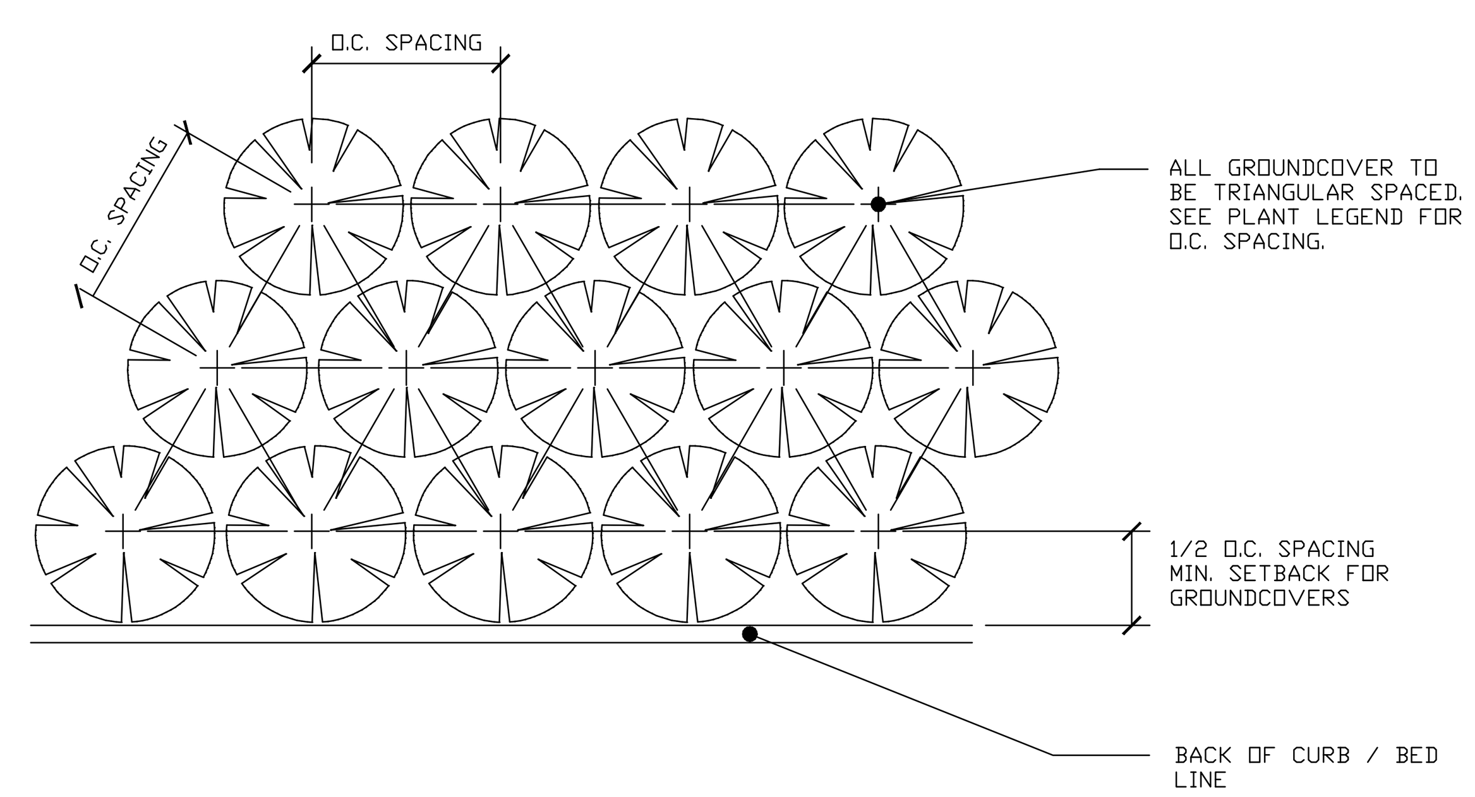
SHRUB/GROUNDCOVER PLANTING DETAIL

SCALE: NOT TO SCALE



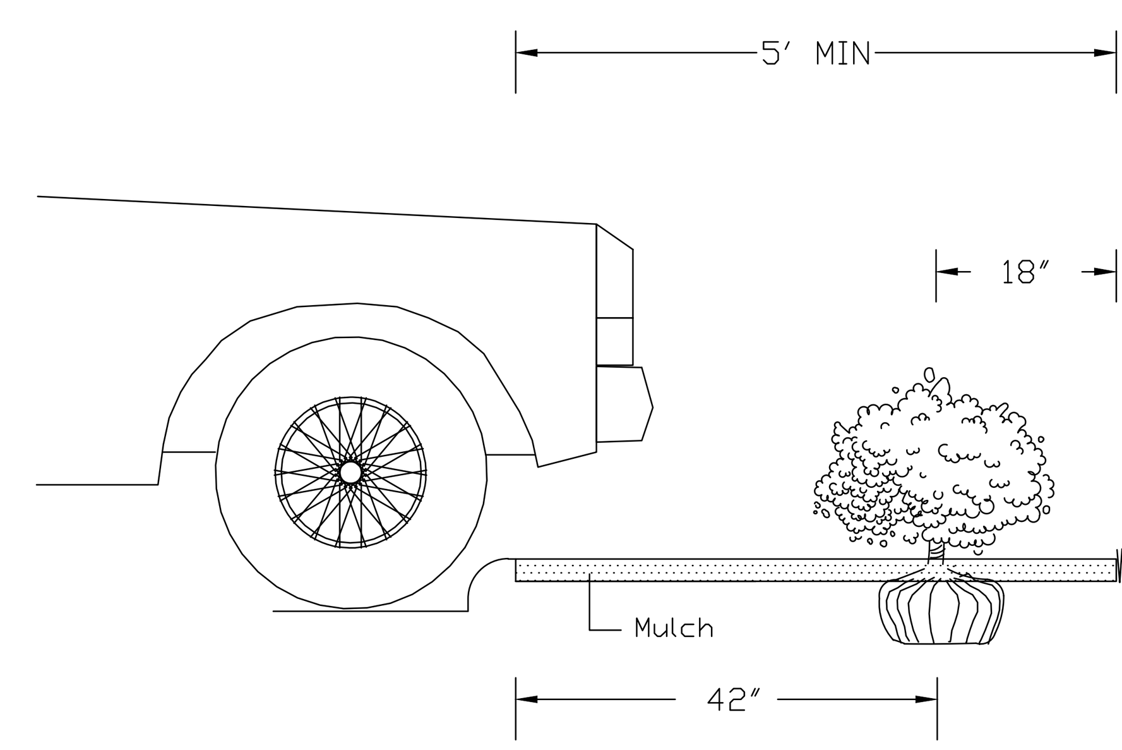
LANDSCAPE EDGING DETAIL

SCALE: NOT TO SCALE



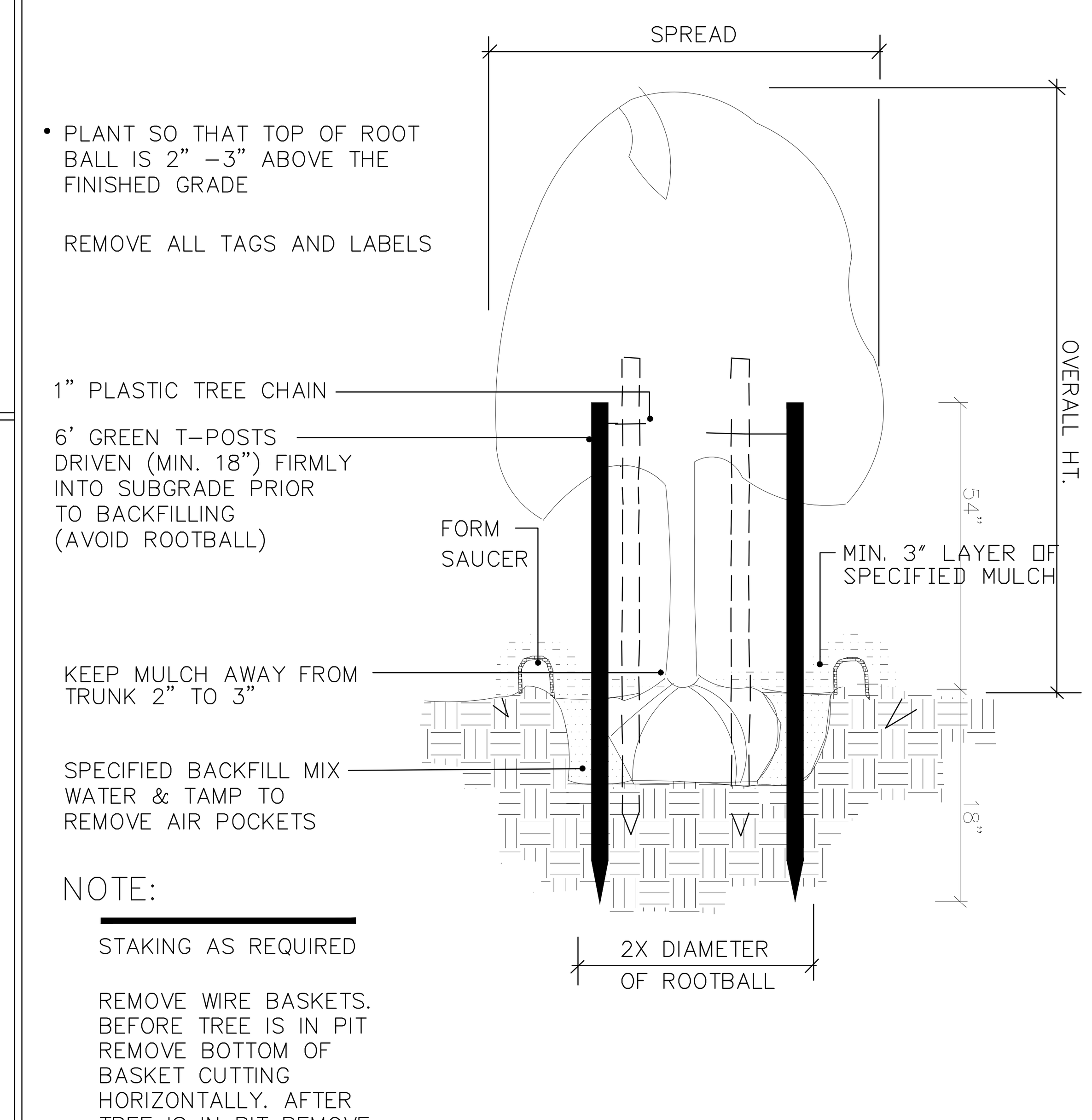
GROUNDCOVER SPACING DETAIL

SCALE: NOT TO SCALE



HEDGE PLANTING AT PARKING CURB

SCALE: NOT TO SCALE



TREE PLANTING AND STAKING DETAIL

SCALE: NOT TO SCALE

CROSSROAD ENGINEERS, PC
Transportation & Development Consultants

LANDSCAPE PLAN

WINDSOR AT HILLVIEW - SECTION 3

JOB No.	.	DRAWN	KLF/LMC/DEP	CHECKED	TEN
DATE	NOVEMBER 3, 2022	DESIGNED	DJM	APPR.	GJI

SHEET 1302

EVERGREEN DESIGN GROUP
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Rockwall, TX 75087
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PRELIMINARY NOT FOR CONSTRUCTION

NO.	DATE	REVISIONS	BY	APPR.
1				
2				
3				
4				
5				
6				
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SHEET 1302

DIRECTORY PATH : R:\Active\John Grimmer\Hillview CC Property\Old Town PUD Modifications\Design\CAD\PLANS\CONSTRUCTION PLANS SEC 3 SPLIT
FILENAME : 1302 LANDSCAPE PLAN.dwg
DATE/USER : 10/27/2022 4:33 PM / LCP