CLIENT:
Palatine Township Road District
530 N. Smith Street
Palatine, Illinois 60067
Tel: 847-358-6336
Fax: 847-358-4056

PREPARED BY:
Haeger Engineering LLC
Illinois Prof. Design Firm #184-003152
1300 N. Plum Grove Road
Schaumburg, IL 60173
Tel: 847-394-6600
Fax: 847-394-6608

BRIARWOOD LANE RE-ALIGNMENT AND SALT CREEK CROSSING REPLACEMENT PLANS

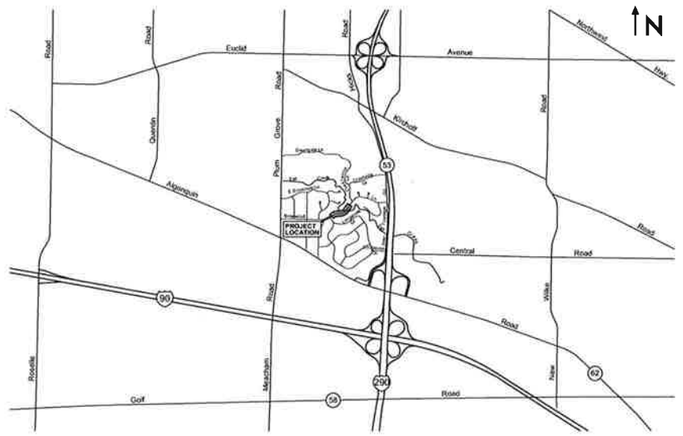
SECTION 35 TOWNSHIP 42 NORTH RANGE 10 EAST
COOK COUNTY
PALATINE TOWNSHIP, ILLINOIS

POSTED SPEED =	25 MPH
DESIGN SPEED =	25 MPH
EXISTING\DESIGN ADT =	650 (< 1000)
ROAD CLASSIFICATION:	LOCAL (URBAN)
STRUCTURE NUMBER:	016-4000
SECTION:	10.25151.90-BR

SUMMARY OF QUANTITES

DEMOLITION AND CLEARING			
CODE NO.	PAY ITEM	UNIT	TOTAL QUANTITY
44000100	Pavement Removal	SY	1774
44000200	Driveway Removal	SY	677
50100200	Removal of Existing Structure (SN 016-4000)	LS	1
50105220	Removal of Existing Culverts	LF	553
63200310	Guardrail Removal	LF	124
-	Selective Clearing and Removal	LS	1
-	Removal and Relocation/Re-Installation of Existing Mailboxes, Signs, Fences, Delineators, Lights and the like along the proposed improvements.	LS	1
EARTHWORK			
CODE NO.	PAY ITEM	UNIT	TOTAL QUANTITY
-	Earthwork Complete Per Plan	LS	1
20201200	Removal and Disposal of Unsuitable Material for Roadway	CY	75
50200450	Removal and Disposal of Unsuitable Material for Structures	CY	75
STORM SEWER			
CODE NO.	PAY ITEM	UNIT	TOTAL QUANTITY
54213657	Precast Reinforced Concrete Flared End Section, 12"	EA	1
54213660	Precast Reinforced Concrete Flared End Section, 15"	EA	20
55019500	Storm Sewer, Type 1, RCP, Class IV, 12"	LF	47
55019600	Storm Sewer, Type 1, RCP, Class IV, 15"	LF	435
60207605	Catch Basin, Type C, with Type 8 Grate	LS	1
THREE SIDED PRECAST STRUCTURE			
CODE NO.	PAY ITEM	UNIT	TOTAL QUANTITY
-	Three Sided Precast Structure Complete per Plan	LS	1
ROADWAY AND DRIVEWAY IMPROVEMENTS			
CODE NO.	PAY ITEM	UNIT	TOTAL QUANTITY
40603340	Hot-Mix Asphalt Surface Course, Mix "D", N70 (2", 1890 SY)	TONS	211.68
40603085	Hot-Mix Asphalt Binder Course, IL-19.0, N70 (4", 1890 SY)	TONS	423.36
35102000	Aggregate Base Course, Type B, 8"	SY	1760
40603310	Hot-Mix Asphalt Surface Course, Mix "C", N50 (2", 487 SY)	TONS	54.54
35101800	Aggregate Base Course, Type B, 6"	SY	487
42000101	Portland Cement Concrete Pavement (Jointed), 8"	TONS	159
35101500	Aggregate Base Course, Type B, 2"	SY	159
GUARDRAIL AND PAVEMENT MARKINGS			
CODE NO.	PAY ITEM	UNIT	TOTAL QUANTITY
78100100	Raised Reflective Pavement Markers, Two-Way Amber	EA	20
78200405	Guardrail Markers, Two-Way White	EA	9
78200500	Barrier Wall Markers	EA	6
-	Steel Plate Beam Guardrails, Type A Complete Per Plan with Steel Posts Including End Terminal Sections and Markers as well as Attachments to Walls	LS	1
EROSION CONTROL AND RESTORATION			
CODE NO.	PAY ITEM	UNIT	TOTAL QUANTITY
20101100	Tree Trunk Protection	EA	9
28000305	Temporary Ditch Checks	EA	14
28000400	Perimeter Erosion Barrier	LF	300
28000500	Inlet and Pipe Protection	EA	14
21101615	Topsoil Respread, 4"	SY	2,554
25000210	Seeding, Class 2A	AC	0.53
25000310	Seeding, Class 4	AC	.01
25000400	Nitrogen Fertilizer Nutrient	LB	50.88
25000500	Phosphorous Fertilizer Nutrient	LB	50.88
25000600	Potassium Fertilizer Nutrient	LB	50.88
25100630	Erosion Control Blanket (NAG D575)	SY	2345
25100500	Erosion Control Mat (NAG SC250)	SY	209
-	Rip Rap, Class A4, Scour Protection Including Excavation and Removal of Unsuitable Material, Geotextile Fabric, and Rip Rap Complete per Plan	SY	294
-	1.5" Diameter Tree Installed	EA	12
TRAFFIC CONTROL			
CODE NO.	PAY ITEM	UNIT	TOTAL QUANTITY
70101700	Traffic Control and Protection Complete per Plans	LS	1

Note: Quantities shown above are an estimate, Contractor shall be responsible for determining their own Quantities. Whenever the performance of work is indicated on the plans, and no pay item is included in the contract for payment, the work shall be considered incidental to the contract and no additional compensation will be allowed.



LOCATION MAP
Not To Scale

LEGEND

Existing Symbol	Description	Proposed Symbol
	Storm Sewer Manhole	
	Catch Basin	
	Inlet	
	Flared End Section	
	Sanitary Sewer Manhole	
	Clean Out	C.O.
	Storm Sewer	
	Sanitary Sewer	
	Water Main	W
	Light Pole	
	Fence	
	Guardrail	
	Sign	
	Gas Valve	
	Gas Line	G
	Electric Line	E
	Overhead Utility Line	OHW
	Electrical Pedestal	
	Electric Manhole	
	Guy Wire	
	Utility Pole	
	Telephone Pedestal	
	Telephone Manhole	
	Telephone Line	T
	Cable TV Line	CATV
	Cable TV Pedestal	
	Mailbox	MB
	Curb & Gutter	
	Retaining Wall	
C XXX.XX	Curb Elevation and	C XXX.XX
G/P XXX.XX	Gutter/Pavement Elevation	G XXX.XX
XXX.XX	Pavement Elevation	P XXX.XX
XXX.X +	Ground Elevation	XXX.X
T/W XXX.XX	Top of Wall Elevation	T/W XXX.XX
B/W XXX.XX	Bottom of Wall Elevation	B/W XXX.XX
	Open Lid Frame & Grate	Gr XXX.XX
	Closed Lid Frame & Lid	Rim XXX.XX
	Swale	
	Hardscape Flow	
	Softscape Flow	
XXX	Contour Line	XXX
	Floodplain	
	Floodway	
	Deciduous Tree	
	Coniferous Tree	
	Bush	
B-1	Brushline	
	Soil Boring	B-1
	Over Land Flow Route	

INDEX TO CIVIL SHEETS

NO.	DESCRIPTION
1	TITLE SHEET
2 - 3	GENERAL NOTES AND SPECIFICATIONS
4	ALIGNMENTS, TIES, AND BENCHMARKS
5 - 6	MAINTENENCE OF TRAFFIC PLAN
7	GEOMETRY AND PAVEMENT MARKING PLAN
8 - 9	EXISTING CONDITIONS AND DEMOLITION PLAN
10 - 11	PLAN AND PROFILES - BRIARWOOD LANE
12 - 14	CROSS SECTIONS - BRIARWOOD LANE
15 - 17	CROSS SECTIONS - DRIVEWAYS
18	SALT CREEK CROSSING PLAN
19 - 21	TYPICAL DETAILS

INDEX TO STORM WATER POLLUTION PREVENTION PLAN (SWPPP) SHEETS

NO.	DESCRIPTION
EC-1	SWPP PLAN TITLE SHEET
EC-2	SWPP PLAN NOTES
EC-3	SWPP PLAN DETAILS
EC-4	SWPP PLAN DETAILS
EC-5	SWPP PLAN

INDEX TO ICPC / HY-SPAN SYSTEMS BRIDGE DRAWINGS (BY OTHERS - FOR REFERENCE)

NO.	DESCRIPTION
1	TITLE SHEET
2	BRIDGE DETAILS
3	FOOTING AND JOINT DETAILS
4	HEADWALL AND WINGWALL DETAILS
5	GENERAL NOTES AND SPECIFICATIONS

BENCHMARKS:

SOURCE BENCHMARK

Description: A chiseled square cut into top of head wall.

Location: At the end of North Brookfield Lane approx. 100 feet north of centerline of cul-de-sac, behind 258 North Brookfield Road.

Elevation: 710.66 (NGVD 1929)

SITE BENCHMARK

HE CP #703

Description: Set Iron Rod.

Location: Northwest side of Briarwood Lane bridge. Approximately 60.6' North of the gabion wall and 5.75' West of Blue Spruce.

Elevation: 708.13 (NGVD 1929)

PROJECT DESCRIPTION:

Complete removal and replacement of existing Structure Number 016-4000 (3 Cell, 7.5' high x 12' wide cells, Concrete Box Culvert) with single span three sided precast structure including re-alignment of Briarwood Lane to provide better approach alignment to the structure.

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

Note:
Call 811 at least 48 hours, excluding weekends and holidays, before you dig.

0' 5' 10' 15' — 1" = 5'
0' 10' 20' 30' — 1" = 10'
0' 50' 100' — 1" = 20'
0' 75' 150' — 1" = 30'
0' 125' 250' — 1" = 50'

KEVIN A. SHAFER
062-055416
LICENSED PROFESSIONAL ENGINEER
STATE OF ILLINOIS

EXPIRES 11-30-13

Note:
Applicable only to Civil & SWPPP Sheets.

No.	Date	Revision

HAEGER ENGINEERING
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Illinois Professional Design Firm License No: 184-003152
www.haegerengineering.com

TITLE SHEET

BRIARWOOD LANE RE-ALIGNMENT AND SALT CREEK CROSSING REPLACEMENT PLANS
PALATINE TOWNSHIP, ILLINOIS

PALATINE TOWNSHIP ROAD DISTRICT
JOHN D. POWERS
HIGHWAY COMMISSIONER

Project Manager:	K A S
Engineer:	J D T
Date:	10/31/2011
Project No.	08-041E
Sheet	1 / 21

Plot Date: Nov 02, 2011 - 10:13am Plotted By: josh d
File Name: P:\2008\08041\Drawing\Final Engineering\08041E Title Notes Details.dwg

GENERAL NOTES

1. Definition of Terms:
   a. "Owner" shall mean the person or entity with which Haeger Engineering, LLC has been contracted with to prepare the Plans and Specifications. Owner for this project is the Palatine Township Road District (PTRD).
   b. "Engineer" shall mean Haeger Engineering, LLC.
   c. "Contractor" shall mean the persons or entities responsible for performing and constructing the work described in the Plans, Specifications and other Construction Documents including but not limited to furnishing all labor, materials, tools, equipments, and other incidentals necessary.
   d. "Plans and Specifications" shall mean the Engineering Drawings and any Specifications prepared by Haeger Engineering, LLC, the Engineer.
   e. "Jurisdictional Agency" shall mean any local, municipal, county, township, state or federal entity of government or other entity having jurisdiction of some aspect of the project from whom approval, permit and/or review and approval was required.
2. The Specifications governing this project are as follows:
   a. All applicable Village/City and other applicable Jurisdictional Agency Ordinances, Codes, Regulations, Requirements, Policies, Specifications, Standards, etc.
   b. Roadway, Earthwork, Culvert and other construction shall conform to the Illinois Department of Transportation (IDOT) "Standard Specifications for Road and Bridge Construction", latest edition and any subsequent "Supplemental Specifications and Recurring Special Provisions" as well as any applicable IDOT Highway Standards. Hereafter these items shall be collectively be referred to as the IDOT Standard Specifications.
   c. Water Main, Storm Sewer, and Sanitary Sewer construction shall conform to the "Standard Specifications for Water and Sewer Construction in Illinois", latest edition.
   d. Soil Erosion and Sedimentation Control shall conform to the Illinois Environmental Protection Agency (IEPA) "Illinois Urban Manual" (IUM), latest edition and "Illinois Procedures and Standards for Urban Soil Erosion and Sedimentation Control", latest edition.
   e. Traffic Control shall conform to the "Manual of Uniform Traffic Control Devices" (MUTCD), latest edition, as well as the latest edition of the "Illinois Supplement to the MUTCD", and IDOT "Quality Standard for Work Zone Traffic Control Devices", latest edition.
   f. All handicap accessibility items shall conform to the Illinois Accessibility Code (IAC), latest edition.
   g. General Notes and Specifications contained herein or elsewhere as a separate document.

   If a conflict, contradiction, or discrepancy occurs between any of the above Specifications the more stringent requirement shall apply, unless directed otherwise by the applicable Jurisdictional Agency.
3. Contract Documents:
   a. The Engineer's Plans and Specifications shall be included as part of the Contract Documents.
   b. All Contractors shall carefully examine the Plans and Specifications, and other Contract Documents prepared for the work. They shall visit the site of the work and acquaint themselves with all local conditions, codes, and requirements affecting the contract. If awarded the contract, they shall not be allowed extra compensation by reason of any unforeseen difficulties or obstacles which the Contractor could have discovered or reasonably anticipated or inferred prior to bidding or start of construction.
   c. Should it appear that the work covered by the Plans and Specifications or other Contract Documents is not sufficiently detailed or explained, a Request For Information (RFI) Form shall be submitted to the Engineer for further explanations and drawings as may be necessary to clarify the point in question prior to the contract award. It is the intention of the Contract Documents to provide a job complete in every respect. Incidental items or accessories necessary to complete the work may not be specifically noted or shown but that are necessary to complete the project shall be considered incidental to the Contract. The Contractor is responsible for this result and to turn over the project in complete operating condition, irrespective of whether the contract documents cover every individual item in minute detail.
   d. The Contractor shall review the subsurface exploration and geotechnical report (a.k.a. soil boring report) prepared by Soil and Material Consultants dated August 31, 2011, to become familiar with the subsurface soil conditions for the site. Copies of all such soil boring reports for the property can be obtained from the Owner. If any additional soils data is needed to confirm the Contractor's opinions of the subsurface conditions, this shall be done at the Contractor's expense. The Contractor shall obtain the Owner's written authorization to access the site to conduct a supplemental soils investigation. The Owner and Engineer make no representation or warranty regarding the number, location, spacing or depth of borings taken, nor of the accuracy or reliability of the information given in the results thereof. Furthermore, the Owner and Engineer assume no responsibility for the possibility that during construction, the soil and groundwater conditions may vary between borings or are different than previously indicated. Any bracing, sheeting, dewatering or special construction methods deemed necessary by the Contractor in order to install the proposed improvements shall be considered incidental to the Contract and no additional compensation will be allowed.
4. Should any apparent errors, omissions, discrepancies or conflicts be discovered on the Plans, Specifications, Quantities or other Contract Documents by the Contractor, whether prior to or after the award of the contract, the Engineer's attention shall be called to the same before work is begun thereon, so that proper clarification can be provided or revision made. If any work is done without contacting the Engineer, it shall be considered that the Contractor has proceeded at their own risk and expense.
5. Whenever the performance of work is indicated on the Plans, and no specific item is included in the Contract for payment, the work shall be considered incidental to the Contract and no additional compensation will be allowed. The Contractor shall provide all necessary labor, material, equipment, etc. necessary to perform all the work required for construction of the proposed improvements.
6. The base plan/drawing for the Engineering Plans (existing conditions, site topography, utilities, rights-of-way, etc.) was obtained from the topographic survey prepared by:

   Haeger Engineering, LLC
   1300 N. Plum Grove Road
   847.394.6600
   Job Number: 08041

7. The Owner shall obtain the necessary approvals from the following Jurisdictional Agencies:
   a. Cook County Highway Department as well as IDOT (if required).
   b. Illinois Environmental Protection Agency (IEPA) - Notice of Intent (NOI) General Permit to Discharge Storm Water from Construction Site Activities.
   d. Joint Permit: US Army Corps of Engineers (USACE) / Illinois Department of Natural Resources/Office of Water Resources (IDNR/OWR).
   e. North Cook County Soil & Water Conservation District (NCCSWCD).
8. The Contractor, unless otherwise agreed upon in writing with the Owner prior to the start of Construction, shall at his own expense, obtain all other approvals including permits, licenses, etc., as may be required for the execution of this work as well as provide all necessary notices, pay all fees required, post bonds, obtain all necessary insurance, and comply with all laws, ordinances, rules, and regulations relating to the work and to the preservation of public health and safety. The Contractor shall also provide all required insurance and/or bonds as may be required by the Jurisdictional Agencies. In addition, the Contractor shall meet all of the requirements of any permits as might be issued for this work by other Agencies, and shall pay for at their sole expense any surety, insurance or bonds as may be required by the Jurisdictional Agencies.
9. No work shall proceed until the appropriate permit or permits have been obtained for the item or items to be constructed. If any work does proceed without the appropriate permits or approvals, it is being done without the permission or consent of the Engineer. The Contractor and Party authorizing the work to proceed shall be assumed to be proceeding at their own risk and the Engineer shall not be held liable or responsible for any work being performed without a permit.
10. The Contractor shall indemnify and hold harmless the Owner, Engineer, Village/City, and other Jurisdictional Agencies as well as all of their respective officers, employees, agents, and Engineers from and against all losses, claims, demands, payments, suits, actions, recoveries, and judgment of every nature and description brought or recovered against them, by reason of any act, error or omission of said Contractor, their agents or employees in the execution of the work or in the guarding of it.
11. The construction shall be under the general inspection and observation of the designated individual authorized by the Village/City or other applicable Jurisdictional Agencies. The Village/City, Jurisdictional Agencies, Owner, and Engineer shall be notified at least two working days prior to the commencement of work.
12. The location of existing underground utilities such as water mains, sewers, gas lines, electric lines, cable TV lines, fiber optic lines, etc., as shown on the Plans, has been determined from the best available information and has been provided for the convenience of the Contractor. However, the Owner and Engineer do not assume responsibility in the event that during construction, utilities other than those shown may be encountered and that the actual location of those which are shown may be different from the location as shown on the Plans. The Contractor is to verify the location of all utilities prior to the start of work and is responsible for damage to the same. The Contractor shall contact J.U.L.I.E. or Digger by dialing 811 (Outside the City of Chicago - J.U.L.I.E.: 1-800-892-0123 or within the City of Chicago - Digger: 312-744-7000) and the Village/City Public Works Department for utility locates at least 48 hours, excluding weekends and holidays, before digging. For any utility companies which are not members of JULIE or DIGGER, the Contractor shall contact the Owners of each respective utility directly for utility locates at least 48 hours, excluding weekends and holidays, before digging.

    The Contractor shall also verify the the depth of the existing utilities and if necessary, the Contractor shall shall be responsible for the maintenance and preservation of these utilities. Any relocation or lowering of utilities shall be coordinated by the Contractor at no additional cost to the Owner. Any utility location relocation will be paid for by the Owner. The Contractor shall be responsible for the protection of all underground or surface utilities even though they may not be shown on the plans. any utility that is damaged during construction shall be repaiered or replaced at the Contractor's expense.
13. In some instances, the existing utilities are shown on the Plans according to information obtained from the utility companies (atlas information) and/or surveys performed By Others. The Owner and Engineer do not guarantee the accuracy or completeness of this information. The Contractor shall be aware of potential conflicts with existing or other proposed utilities as indicated on the Plans or that become apparent as the result of field locates By Others. The Contractor shall make their own investigations as necessary to determine the existence, nature, and location of all utility lines and related appurtenances within the limits or adjacent to the proposed improvements. The Contractor shall locate all utilities far enough in advance to avoid all conflicts between existing utilities and proposed improvements and make the Engineer aware of any such conflicts. If the Contractor encounters a conflict between the proposed improvements and existing utility that was not located in advance by the Contractor, then the Contractor shall at no cost to Owner, relocate the proposed improvements and/or utility to avoid the conflict.
14. The Contractor will be required to cooperate with all utility companies involved in connection with the removal, temporary relocation, construction, reconstruction or abandonment by these companies of any and all services or facilities owned or operated by them within the limits or general vicinity of the proposed improvements. Further, at the direction of the Owner and Utility Companies the Contractor shall coordinate the location and install PVC sleeves as necessary under the proposed pavement, curbs, walks, etc. for utility companies to run their proposed utility lines.
15. Before doing any work which will damage, disturb or leave unsupported, or unprotected any utility lines or related appurtenances encountered, the Contractor shall notify the respective Owner thereof, who will make all arrangements for relocating, adjusting, bracing, or otherwise maintaining or abandoning service on lines that fall within the limits of the proposed construction without cost to the Contractor, including the removal of all cables, manhole covers and other related appurtenances which the Owner desires to salvage. After such arrangements have been made, the Contractor will proceed with the work as directed by the Engineer. All utility lines and related appurtenances which are abandoned shall be removed if necessary and legally disposed of legally off-site by the Contractor.
16. No extra compensation will be allowed by the Contractor for any expense incurred for complying with all of these aforementioned utility coordination and cooperation requirements, or because of delays, inconvenience or interruptions in their work resulting from the failure of any utility company to remove, relocate, construct, reconstruct or abandon their services. The responsibility for prompt and timely removal, relocation, reconstruction or abandonment of their facilities by all utility companies involved, and the coordination of their own work with that of these companies to the end that work on this improvement is not delayed because of the necessary changes in the existing utilities, public or private, shall rest upon the Contractor.
17. Prior to commencing work, the Contractor is to field check and verify all critical locations, elevations, materials, sizes, dimensions, and conditions affecting the work, and notify the Engineer immediately if there are any suspected discrepancies. No work shall be performed until the suspected discrepancy has been resolved. The Contractor shall also call to the attention of the Engineer any errors or discrepancies which may be suspected in the lines and grades which are established by the Surveyor, and shall not proceed with the work until any lines and grades which are to believed to be in error have been verified or corrected by the Engineer.
18. The Contactor shall maintain positive drainage at all times during construction. Construction shall not block off-site drainage and the flow from any drainage ways, field tiles, storm sewers or similar draining off-site properties. All on-site existing field tiles, storm sewers, drainage ways or similar encountered or damaged during construction shall be maintained, restored to their original pre-construction condition or better, properly re-routed, and/or connected to the proposed stormwater drainage system. If this can't be accomplished then the field tile should be repaired or re-routed with new pipe of similar diameter to the original line and put back in service. The Contractor shall notify the Engineer if any such field tiles are encountered. Whenever during any construction activities any loose material is deposited in the flow line of gutters, ditches, drainage structures, etc. such that the natural flow of water is obstructed, this material shall be removed by the responsible party.
19. Prior to commencement of construction, on sites that will ultimately result in the disturbance of one (1) acre or more, the Contractor shall be responsible for obtaining a copy of the notice of coverage letter and the IEPA National Pollutant Discharge Elimination System (NPDES) General Permit ILR10 from the Owner. The Owner together along with the Contractor and/or other entities if so designated by the Owner, shall be responsible for ensuring that all the requirements of the General Permit and the Storm Water Pollution Prevention Plan (SWPPP) including but not limited to the installation, maintenance as well as the installation of any additional measures necessary that may be required, and inspections of the soil erosion and sediment control measures as well as completing all of the necessary applicable certifications, reports, logs, etc. Inspections are required to be performed at least once every seven (7) calendar days and within 24 hours of the end of a storm event of 0.5 inches of rain (or equivalent snowfall) or greater. The SWPPP and all the required paperwork shall be kept on-site and be organized and ready for viewing.
20. No construction activities, disturbance or fill shall occur within the limits of natural resources such as wetlands, floodplains, creeks, streams, ponds, lakes, basins, reservoirs, etc. or their respective buffers unless specifically specified on the Plans and further that the work has been permitted. The Contactor shall take sufficient precautions to protect these natural resources that are to remain, whether on-site or on adjacent property, to protect them from sediment, fuels, oils, bitumens, calcium chloride, or other harmful materials that may be a detriment. The Contractor shall conduct and schedule their Construction so as to avoid siltation, or other disturbance or impact to these natural resource areas. The Contractor shall not disturb or otherwise impact these designated natural resource areas, or areas that have been designated to be protected or as essential habitat for State or Federal listed endangered or threatened species, or Prairie or Savannah areas where the Owner has made commitments for protection of these areas. Also, if previously unidentified natural resource areas, prairies, savannahs, or areas or locations suspected of containing protected species are identified during construction, the Contractor shall not disturb them unless written permission to do so is granted by the Owner or applicable Jurisdictional Agency. If the Owner, Engineer, or applicable Jurisdictional Agency determines that additional measures are necessary to prevent or mitigate project effects on natural resource areas, prairies, savannahs, protected species, or essential habitat the Contractor shall cooperate in accomplishing these measures.
21. The Contractor shall confine their activities to within the project boundaries, work areas, or easements specified. No work shall be performed on adjacent private property or outside the project work areas without the written permission of each respective Owner. The Contractor shall be liable for damage caused to existing or newly installed improvements as well as any damage on adjacent property or areas outside designated work areas, provided damage us a result of Contractor action, or lack thereof.
22. The Contractor is responsible for returning all areas affected by equipment, materials and/or laborers to pre-construction condition or better. All existing utilities or improvements, including but not limited to pavements, curbs, drives, trees, and parkways damaged or removed during construction shall be promptly restored to their respective original pre-construction condition or better. The Contractor is also responsible for protecting all newly constructed work from damage until the project has been completed and has been approved and accepted by the Owner.
23. Clean-up and final restoration shall be performed immediately upon completion of each phase of the work or when directed to do so by the Owner, so that these areas will be restored as nearly as possible to their original pre-construction condition or better, and shall include but not be limited to, restoration of maintained lawns and rights-of-way, roadways, driveways, sidewalks, ditches, landscaping, fences, mailboxes, storm sewers, drain tiles, sanitary sewers, water mains, etc. It shall also be the responsibility of the Contractor to remove from the site any and all materials and debris which results from their construction operations at no additional expense to the Owner.
24. All proposed grades shown on the Plans shall be considered to be finished grade surface elevations unless noted otherwise.
25. Construction staking/layout shall be provided by the Contractor and shall be included in the Contract Price unless otherwise agreed upon in writing with the Owner prior to the start of Construction.
26. All Construction means and methods, techniques, procedures, scheduling, sequencing, and job site safety is the sole responsibility of the Contractor.
27. The Contractor shall observe and comply with all the Occupational Safety and Health Administration (OSHA) standards, rules and regulations, as well as any other applicable local, state and federal safety requirements.
28. All trenching, shoring, bracing and construction work performed shall be in accordance with the Occupational Safety and Health Administration (OSHA) standards.
29. The Contractor shall take whatever steps necessary to protect the public from open trenches, excavations, and other site obstructions or hazards. No trenches, excavations or holes in the pavement or parkway are to be left open over a holiday, weekend, or after 3 p.m. on the day preceding a holiday or weekend.
30. During construction the Contractor and their Sub-Contractors shall keep the premises clean by removing all rubbish, debris, waste material and other accumulations as necessary. The Contractor shall clean the premises to the satisfaction of the Village/City and Owner.
31. The Contractor shall have appropriate equipment and material including street sweepers and end loaders available on-site at all times when equipment or vehicles are using existing public or private roads and/or pavement. The Contractor shall immediately remove any sediment or debris including but not limited to dirt, mud, clay, sediment, concrete, gravel, sand, stones, plant material, refuse, garbage, oil, grease, etc. deposited on any roadway, street, walk, alley or other pavement by any equipment, vehicles or personnel associated with this project. This work shall be considered incidental to the Contract.
32. The Contractor shall at all times maintain proper dust control at the site and shall have a watering truck readily available during all working hours. The Contractor shall water the entire site whenever the site conditions become unhealthy due to blowing soil or dust. The site shall be watered as many times per day as necessary to maintain a healthy work site as determined by the Owner or Engineer. Water for non-emergency use shall not be obtained from any fire hydrant, unless the fire hydrant is metered with a proper backflow preventer in accordance with Village/City or Jurisdictional Agency requirements. The cost to furnish dust control shall be incidental to the cost of Construction.
33. Trees not marked for removal shall be protected as necessary by the Contractor. In the event that a tree is damaged by the Contractor during construction, the Contractor shall replace such tree with a tree or trees in accordance with Village/City requirements. If the Village/City does not have specific tree replacement requirements, the damaged existing or newly planted tree shall be replaced in accordance with the procedures outlined in Section 201 of the IDOT Standard Specifications. The Contractor shall ensure that they are familiar with the applicable tree preservation requirements and shall be held responsible for the replacement of all damaged trees not designed for removal, and any penalties associated with the unapproved removal of trees.
34. Where overhanging branches, limbs, or roots interfere with the required construction activities, said branches, limbs, or roots shall be trimmed or pruned as necessary in accordance with Section 201 of the IDOT Standard Specifications. This work shall be performed under the supervision of an approved arborist or landscape architect.
35. The Contractor is responsible for the installation and maintenance of adequate signs, traffic control devices, and warning devices, in accordance with the Plans, applicable IDOT Standard Specifications and the MUTCD Standards to inform and protect the public during all phases of construction. The Contractor shall provide all signage, barricades, devices, equipment, personnel, etc. necessary to provide for safe and efficient traffic flow in all areas where the work will interrupt, interfere or cause to change in any form, the conditions of traffic flow that existed prior to the commencement of any portions of the work. Roadways shall remain open to a degree satisfactory to the Owner or applicable Jurisdictional Agency which at their discretion may require the Contractor to furnish traffic control under these or other circumstances where in their opinion it is necessary for the protection of life and property. Emergency vehicle access along with access to fire hydrants shall be maintained at all times. Further, unless authorized by the Owner, all existing access points shall be maintained at all times by the Contractor.
36. Where noted in the Plans, the Contractor shall have Shop Drawings and any other required supporting documentation or calculations prepared and submitted for review and approval prior to any fabrication, placement, or construction. If structural elements such as retaining walls are required, the drawings and any required supporting design calculations must be prepared, and signed and sealed by an Illinois licensed Structural Engineer.
37. The Contractor is responsible for having a set of approved Plans and Specifications with the latest revision date on the job site at all times during the construction period.
38. The Contractor shall maintain a clean, legible, undamaged set of Field Marked Construction Plans. These Field Marked Construction Plans shall show the location of the actual installed location of all underground utilities including related appurtenances (sanitary, storm, water, service stubs, gas, telephone, electric, cable TV, etc.) giving particular attention to concealed elements that would be difficult to measure and record at a later date. Any approved modifications, deviations, or alterations from the approved Plans should also be noted and shown on these Field Marked Construction Plans. These Field Marked Construction Plans shall be provided to the Owner/Engineer at the completion of construction.
39. All work that is performed that is not in conformity with the Plans, Specifications or other Contract Documents or that is defective shall be removed and replaced, or otherwise corrected or remedied by and at the sole expense of the Contractor. Any unauthorized work or work performed beyond the limits or in excess of that shown on the Plans will not be measured or paid for.
40. All work performed under the Plans, Specifications or other Contract Documents shall be guaranteed against all defects in materials and workmanship of whatever nature by the Contractor and his surety for a minimum period of 12 months from the date of final acceptance of the work by the Village/City, other applicable Jurisdictional Agencies, and the Owner, unless otherwise agreed upon in writing with the Owner prior to the start of construction.
41. Before acceptance by the Owner and prior to final payment all work shall be inspected and approved by the Owner or designated representative. Final payment will be made after the Contractor's work has been approved and accepted or as required by the Contract Documents.
42. If required, the Owner shall have As-built or Record Drawings prepared and submitted to the Village/City and all other applicable Jurisdictional Agencies for approval after the completion of construction. These drawings shall be prepared in accordance with the Village/City and other applicable Jurisdictional Agency requirements. The As-built or Record Drawings must be prepared, and signed and sealed by a registered professional Engineer in Illinois.

DEMOLITION AND CLEARING

1. The Contractor shall perform all demolition, clearing, grubbing, and tree removal and protection work in accordance with all applicable Federal, State, County and Local requirements or as noted in the Plans.
2. Prior to the commencement of any demolition or clearing activities, the Owner or Contractor shall obtain all applicable permits to disconnect the existing utility services to each building proposed for demolition.
3. The Contractor shall coordinate all demolition work with the Village/City, utility companies, and other Jurisdictional Agencies, so as to ensure the protection of all existing sewer, water main, and other utilities, and further to ensure that proper stormwater conveyance is attained until the proposed improvements can be installed and placed into operation.
4. Clearing shall consist of the removal and legal disposal of all obstructions such as trees, hedges, fences, walls, accumulations of rubbish of whatever nature, and all logs, shrubs, brush, grass, weeds, and other vegetation and stumps. These items shall be removed whenever they are found within the street right-of-ways or within the limits of construction. Trees to be saved or protected shall be identified by the Engineer on the Plans or in the field. All trees except those designated to be saved or protected, as well as all stumps and hedges within the limits of construction, shall be removed completely and legally disposed of off-site or as otherwise designated on the Plans or authorized by the Owner. Trees designated to be saved or protected as indicated on the Plans or as directed by the Engineer, shall be protected from damage in accordance with the procedures outlined in Section 201 of the IDOT Standard Specifications. Existing trees marked for removal shall be replaced with $1\frac{1}{2}$" diameter tree of the type and location as specified by the PTRD.
5. All items shown to be removed on the Plans including items not specifically noted but necessary to be removed to construct the proposed improvements shall be demolished or removed as necessary and disposed of legally off-site or as approved by the Owner.
6. Road and driveways on each side of the crossing shall remain open for local residents to access their driveways and for mail delivery. Temporary gravel transition ramps shall be provided as necessary to facilitate such access. Contractor shall notify the residents and the PTRD when access to driveways will be temporarily closed. Cost for this work shall be considered incidental to the contract.
7. Existing mailboxes shall be removed and relocated as necessary and shall remain in service during construction. Final mailbox locations shall be coordinated with residents and USPS. Mailbox relocations shall be incidental to contract.
8. Existing signs, delineators, etc. shall be removed and relocated as necessary. Cost of this work shall be considered incidental to the contract.
9. Existing utilities to be disconnected shall be done so at the main or as directed by the applicable Jurisdictional Agency or as noted on the Plans.
10. Utilities marked to be abandoned shall be abandoned as required by the applicable Jurisdictional Agency or as noted on the Plans.
11. All existing pavement or concrete to be removed shall be saw-cut along the limits of the proposed removal to provide a clean vertical edge. The cost of saw-cutting shall be considered incidental to the removal of each item.
12. All voids left by any item removed under any proposed building, pavement walk or other structural areas or within zones of influence thereof shall be properly backfilled with suitable backfill material and/or compacted as necessary by the Contractor.
13. The Contractor shall implement a daily program for dust control as it relates to the demolition and clearing activities. This program is to be approved by the Owner/Engineer prior to the start of any demolition or clearing work.
14. All existing building services serving buildings that are to be removed shall be disconnected and removed as required by the applicable Jurisdictional Agency.
15. All existing wells shown on the Plans to be abandoned or that are discovered during the course of construction shall be exposed and cut-off three (3) feet below the proposed finished grade and sealed by the Contractor in accordance with Section 920 of the "Illinois Water Well Construction Code", latest edition, or as required by the Health Department or by any other Local, County, State or Federal rules and regulations.
16. All existing septic tanks, grease traps or similar shown on the Plans to be abandoned or that are discovered during the course of construction shall have all liquids and solids removed and disposed of legally off-site by a licensed commercial waste hauler in accordance with the requirements of the Health Department or as required by any Local, County, State or Federal rules and regulations. The structures shall then be removed and disposed legally off-site or broken in-place, so as not to hold liquid, and back-filled with suitable materials by the Contractor or as required by the Health Department or by any other Local, County, State or Federal rules and regulations.
17. Any material containing asbestos or other hazardous materials found within existing structures or other items shown to be removed in order to construct the proposed improvements shall be removed from the site and legally disposed of off-site by the Contractor in accordance with applicable County, State or Federal rules or regulations.
18. All fire access lanes or routes located within the existing project area shall remain in service, clean of debris, and accessible for use by emergency vehicles at all times while demolition and clearing work is being performed.
19. The Contractor shall protect and carefully preserve all section or subsection monuments, property corners, benchmarks and the like.
20. It shall be the responsibility of the Contractor to legally remove from the site any and all materials and debris which results from their demolition or clearing operations at no additional expense to the Owner. Burning or incineration on the site is not permitted.

EARTHWORK AND GRADING

1. All earthwork and grading activities shall be performed in accordance with the IDOT Standard Specifications or as noted in the Plans. Included in this work, but not necessarily limited to the following are: stripping and stockpiling of topsoil, mass grading and fine grading of the site and roadways, excavation of unsuitable materials and adequate disposal of unsuitable materials and their replacement with suitable materials where required, construction of detention ponds, berm construction, structural embankment fill, and miscellaneous topsoil respread/placement.
2. Any earthwork quantities, calculations, summaries that have been furnished by the Engineer are for information purposes only and are provided without any guarantee by the Owner or Engineer whatsoever as to their sufficiency or accuracy. They are intended to be used solely as a guide for the Contractor in determining the scope of the completed project. It is the responsibility of the Contractor to determine all material quantities and apprise themselves of all site conditions. The Contractor warrants that he has performed his own investigations as necessary and his own calculations to determine site soil conditions and earthwork quantities. The Engineer makes no representation or guarantee regarding earthwork quantities or that the earthwork for this project will balance due to the varying field conditions, changing soil types, allowable construction tolerances and construction methods that are beyond the control of the Engineer. In the event that the Earthwork is indicated to be Lump Sum then the Contract Price submitted by the Contractor shall be considered as Lump Sum and shall include all items necessary for the complete project and no claims for extra work (i.e., removal of unsuitable materials) will be recognized unless authorized in writing by the Owner. Earthwork shall include all work and materials necessary to to bring grades to subgrade including subgrade preparation prior to placement of aggregate base course material or topsoil.
3. The soil boring reports for the subject property can be obtained from the Owner. The information presented in these reports is solely for the guidance of the Contractor. The Owner and the Engineer make no representation or warranty regarding the information contained in the boring logs or soils report. The Contractor shall make their own investigations and shall plan their work accordingly. Arrangements to enter the property during the bidding phase may be made upon request of the Owner. There will be no additional payment for expenses incurred by the Contractor resulting from adverse soil or ground water conditions.
4. The initial establishment of soil erosion and sediment control measures such as the placement of erosion control silt fence, stabilized construction entrance, inlet protection, etc. shall be installed by the Contractor prior to the start of demolition, clearing and mass grading.
5. All earthwork and grading operations are to be supervised and inspected by a qualified Geotechnical/Soils Engineer or their designated representative. All testing, inspection, observation, and supervision of soil quality, unsuitable soil removal and its replacement, compaction testing, ensuring ponds and retention areas hold/retain water and other soils related operations shall be entirely the responsibility of the Geotechnical/Soils Engineer. Furthermore, no undercut or other recommended remediation work shall be performed without authorization by the Owner and documentation of extent by the Geotechnical/Soils Engineer.
6. A qualified Geotechnical/Soils Engineer or their designated representative shall observe the construction of the retention and detention areas including berming to ensure the areas will be capable of holding the designated normal and high water levels. Gravel or sand seams, or other conditions which may be encountered and which might tend to dewater the area shall be remedied as directed by the Geotechnical/Soils Engineer.
7. Topsoil stripping or excavation shall initially consist of the removal of the uppermost layers of organic soil and stockpiling at a location shown on the Plans, in another area deemed appropriate by the Contractor and approved by the Owner, or at a location specified by the Owner or Engineer. No stockpile location shall be finalized without the explicit approval from the Owner. Further, stockpiles shall not be located within flood prone areas or within designated buffer areas.
8. Stripping of vegetation or ground cover, grading, or other soil disturbance activities shall be done in a manner which will minimize soil erosion. Further, the disturbance shall be kept to a minimum and all disturbed areas shall be stabilized with temporary or permanent measures within fourteen (14) days of active hydrologic disturbance or re-disturbance.
9. The Contractor shall take precautionary measures to minimize earthwork and other activities in the areas where trees are to be saved or protected as to not cause injury to roots or trunks.
10. Embankment material placement including preparation of existing ground surface prior to embankment placement and compaction shall be in accordance with Section 205 of the IDOT Standard Specifications. All embankments located within structural fill areas or zones of influence thereof shall be constructed to a minimum 95% of the modified proctor density in accordance with ASTM D1557. Embankments located in non-structural fill areas shall be constructed to a minimum of 90% of the modified proctor density in accordance with ASTM D1557.

    Fill below pavements should be placed in lifts not exceeding 8 inches in loose thickness, moisture conditioned to within 2% of the optimum moisture content and compacted to at least 95% of the maximum dry density obtained in accordance with ASTM Specification D1557, Modified Proctor Method. Moisture control during earthwork operations, including the use of disking or appropriate drying equipment and techniques, should be expected. In-place density tests should be performed with a minimum of 1 test per 2,500 square feet of fill area for each lift of fill placed. Moisture contents shall be controlled by disking or other approved chemical or mechanical means to achieve the desired moisture content and density specifications. Laboratory Proctor tests should be performed on fill materials to determine the maximum dry density and optimum moisture content.
11. Topsoil respread shall consist of placing a minimum of a four (4) inch layer of topsoil or depth indicated on the Plans over the disturbed unpaved areas within the construction limits. These areas shall then be seeded, sodded, landscaped, stabilized, etc. as indicated on the Plans.
12. Refer to the Plans and SWPPP for additional information on the landscaping and ground cover requirements.
13. Completed subgrade grading and final finished grading for all proposed improvements shall be within a tolerance of plus or minus one-tenth (0.1) foot of the design elevation.
14. Contractor shall provide uniform slopes between proposed grades and smooth vertical curves/transitions through all high and low points. Smooth transitions shall be provided where any proposed improvements match into or abut existing improvements.
15. The subgrade for the proposed streets and other pavement areas shall be proof-rolled by the Contractor in the presence of the Owner/Engineer or applicable Jurisdictional Agency and the Geotechnical/Soils Engineer. Any unstable areas or failures encountered shall be removed and replaced or remediated as directed by the Owner/Engineer or applicable Jurisdictional Agency and Geotechnical/Soils Engineer. Any unstable areas or failures encountered and remediation method including approximate size, quantity, etc. shall be documented by the Geotechnical/Soils Engineer.
16. It shall be the responsibility of the Contractor to legally remove from the site any and all materials and debris which results from their construction operations at no additional expense to the Owner. Burning or incineration on the site is not permitted.
17. The site shall be proof-rolled prior to placement of new engineered fill to replace unsuitable soils and raise grades and placement of aggregate base course; and after stripping/excavation to the final design grade. Proof-rolling using a loaded dump truck having an axle weight of at least 10 tons can be used to aid in identifying localized soft or unsuitable material which should be removed. A qualified geotechnical/soils engineer or their representative should be on site to monitor stripping and site preparation operations and observe that unsuitable soils have been satisfactorily removed and to observe proof-rolling. Any soft or unsuitable materials encountered during proof-rolling should be compacted in place or removed and replaced with an approved backfill.
18. Any soil placed as engineered fill should be an approved material, free of organic matter or debris, be a non-frost susceptible soil, and have a liquid limit and plasticity index less than 40 and 15, respectively. The project geotechnical/soils engineer should be consulted to determine the suitability of off-site/on-site materials for use as engineered fill, prior to use or placement.
19. The placement of engineered fill shall be monitored full-time by a qualified geotechnical/soils engineer and in place density tests should be performed to verify the adequacy of the compaction for each lift of fill placed.
20. The removal and disposal of excavation spoils, per Illinois Public Act 96-1416, soil sampling and analysis, along with certification from a licensed professional engineer that the soil is uncontaminated, will be required prior to clean construction and demolition debris (CCDD) landfill acceptance. The Contractor shall be responsible for all IEPA documentation and testing required to haul and dispose of clean construction or demolition debris. The cost associated with any engineering or material testing required shall be incidental to the appropriate contract pay items.

STORM SEWER

1. All storm sewers, services and related appurtenances shall be constructed and tested in accordance with the "Standard Specifications for Water and Sewer Construction in Illinois", latest edition, the requirements of the applicable Jurisdictional Agency, and the applicable Typical Details.
2. Rough grading to be within one (1) foot of finished subgrade elevation shall be completed prior to the commencement of the underground utility construction.
3. Storm Sewer Pipe shall be constructed from one or more of the following materials as specified on the Plans:
   a. Reinforced Concrete Pipe (RCP) conforming to ASTM C76 with O-Ring gasket joints conforming to ASTM C443. Pipe class shall be per Section 550 of IDOT Standard Specifications, except that pipe shall be a minimum Class III in non-structural areas (i.e., grass, parkway, etc.) and a minimum of Class IV in or within zone of influence of all structural areas (i.e. roadways, parking lots, curbs, walks, etc.).
   b. Polyvinyl Chloride (PVC) Pipe conforming to ASTM D3034 with a Standard Dimension Ratio (SDR) of 26 unless noted otherwise on the Plans with elastomeric gasket joints conforming to ASTM D3212.
   c. High Density Polyethylene (HDPE) Pipe with smooth wall interior conforming to ASTM D3350 with joints conforming to ASTM D3212 and ASTM D3350.
   d. Ductile Iron Pipe (DIP), Class 52, conforming to ANSI A21.51 and AWWA C151 with rubber gasket joints conforming to ANSI A21.11 and AWWA C111. The interior of the pipe and fittings shall be cement-mortar lined in accordance with ANSI A21.4 and AWWA C104. The exterior of all pipes and fittings shall be coated with an asphaltic coating per ANSI A21.51 and AWWA C151 for ductile iron pipe, and ANSI A21.10/A21.53 and AWWA C110/C153 for fittings.
4. Where water main quality pipe and joints are required to meet the water main protection requirements the storm sewer pipe shall be constructed from one or more of the following materials as specified on the:
   a. Reinforced Concrete Pipe (RCP) conforming to ASTM C361 with O-Ring gasket joints conforming to ASTM C443 and C361. Pipe class shall be per Section 550 of IDOT Standard Specifications, except that pipe shall be a minimum Class III in non-structural areas (i.e., grass, parkway, etc.) and a minimum of Class IV in or within zone of influence of all structural areas (i.e., roadways, parking lots, curbs, walks, etc.).
   b. Polyvinyl Chloride (PVC) Pipe conforming to ASTM D2241 with a Standard Dimension Ratio (SDR) of 26 unless noted otherwise on the Plans with elastomeric gasket joints conforming to ASTM D3139 and F477.
   c. High Density Polyethylene (HDPE) pressure pipe with smooth wall interior and joints conforming to AWWA C-906.
   d. Ductile Iron Pipe (DIP), Class 52, conforming to ANSI A21.51 and AWWA C151 with rubber gasket joints conforming to ANSI A21.11 and AWWA C111. The interior of the pipe and fittings shall be cement-mortar lined in accordance with ANSI A21.4 and AWWA C104. The exterior of all pipes and fittings shall be coated with an asphaltic coating per ANSI A21.51 and AWWA C151 for ductile iron pipe, and ANSI A21.10/A21.53 and AWWA C110/C153 for fittings.
5. Non-circular reinforced concrete pipe shall be constructed from one or more of the following materials as specified on the Plans:
   a. Reinforced Concrete Arch Pipe in accordance with ASTM C506 and AASHTO M206.
   b. Reinforced Concrete Elliptical Pipe in accordance with ASTM C507 and AASHTO M207.
   c. Reinforced Concrete Box Culvert Sections in accordance with ASTM C1433.
6. All storm structures shall be constructed of precast reinforced concrete sections with tongue and groove joints conforming to ASTM C478. If the structure diameter is not specified in the Plans the required manhole diameter shall be determined by size of pipes and their orientation. The precast reinforced concrete base and bottom section shall be monolithically cast. All pipe openings in the structure shall be precast into the structure walls at the proper invert elevation and orientation. Benches and defined channel invert flow lines shall be provided at bottom of structures to provide smooth defined flow path between all inlet and outlet pipe inverts. Storm manholes and catch basins shall have eccentric offset cones, except where necessary due to height and opening restrictions, where a precast reinforced concrete flat top slab section shall be provided in-lieu of an eccentric cone section. Flat top slabs shall conform to IDOT Standard Detail 602601 as well as meet the H-20/HS-20 loading requirement. Catch Basins shall have the sump depth as specified in the Plans. Concrete adjusting rings will be permitted where necessary and shall be limited to two (2) adjusting rings totaling not more than eight (8) inches in height. All joints between structure sections, adjusting rings and frames shall be securely sealed to one another using a resilient, flexible, non-hardening bituminous mastic or butyl sealing compound in accordance with ASTM C990, or flexible rubber gasket in accordance with ASTM C443 in order to provide a watertight joint. The Contractor shall remove all excess mastic on inside of structure and butter joints with mortar.
7. Manhole steps shall be furnished and installed in all storm structures in accordance with the "Standard Specifications for Water and Sewer Construction", latest edition and as shown on the Plans. Steps shall be polypropylene coated steel core reinforced steps with slip, load, and pullout ratings in accordance with ASTM C478 and OSHA requirements. The steps shall be placed uniformly at twelve (12) to sixteen (16) inches on-center and shall be located directly below the manhole frame opening and shall not be located directly over a pipe opening with the alignment of the steps generally perpendicular to the pipe flow direction wherever possible.
8. Trench excavation, bedding and backfill, and compaction for storm sewers and related appurtenances shall be in accordance with applicable Trench Section Details.
9. When in the opinion of the Geotechnical/Soils Engineer, unsuitable soil conditions are encountered within utility trenches which require the removal of unsuitable materials below the depth of the bedding specified, the Contractor shall remove the unsuitable soils and replace the material with granular compacted bedding material as directed by the Geotechnical/Soils Engineer, Village/City or other applicable Jurisdictional Agency. The depth of the required removal and replacement shall be documented by the Geotechnical/Soils Engineer and witnessed by the Contractor. This work, when approved by the Owner and Geotechnical/Soils Engineer, will be measured and paid for at the contract unit price per cubic yard in place for unsuitable soil which price shall include the removal and off-site disposal of unsuitable soil, the additional bedding material, and all labor, materials and equipment required to perform the work as specified.
10. All utility trenches for the proposed sanitary sewer, storm sewer, water main and services lying under or where the inner edge of the trench is within two (2) feet of any pavement area, curb, curb and gutter, stabilized shoulder, sidewalk, building, utility crossing or other structural area shall be backfilled with select granular backfill material and compacted as noted on the Plans.
11. The Contractor shall be responsible for dewatering any excavation for the installation of storm sewers, services and related appurtenances. Any dewatering required to construct the proposed underground improvements shall be considered incidental to the respective underground improvement.
12. Connections to an existing storm sewer shall be to an existing service stub, wye, tee, or manhole where possible. Sewer connections to existing storm structures shall be machine cored. All pipe connections to storm structures shall be made with flexible waterstop gasket/boot (resilient connector) conforming to ASTM C923.
13. When connecting to an existing storm sewer main by means other than an existing service stub, wye, tee, or manhole, one of the following methods shall be used:
    a. Circular saw-cut of sewer main by proper tools ("shewer-tap" machine or similar) and proper installation of a suitable hub-wye saddle or hub-tee saddle.
    b. Remove the entire Section of pipe breaking only the top of one bell and replace with a wye or tee branch Section.
    c. With pipe cutter, neatly and accurately cut out the desired length of pipe for insertion of proper fittings, using "Band-Seal" or similar flexible type couplings to hold it firmly in place.
    d. Other method approved by Jurisdictional Agency.
14. "Band-Seal" or similar flexible type couplings shall be used in the connection of sewer pipe of dissimilar materials.
15. Open lid storm structures are designated with "Gr" on the Plans and closed lid storm structures are designated with "Rim" on the Plans.
16. Closed lid storm structures frames and lids shall be Neenah R-1713 with Type B lid, or approved equal, unless noted otherwise in the Plans. Closed lid storm lids shall be imprinted with the word "STORM" cast into the lid.
17. Open lid storm structures frames and lids shall be Neenah R-2504-D, or approved equal, unless noted otherwise in the Plans.
18. Yard area drain structures shall be Nyloplast inline drains or drain basin structures, or approved equal, unless noted otherwise in the Plans.
19. Concrete flared end sections shall be precast reinforced concrete with an end block cast separate to anchor flared end section in place in accordance with IDOT Standard 542301 for circular concrete pipe and IDOT Standard 542306 for elliptical concrete pipe. Grating for flared end sections shall be in accordance with IDOT Standard 542311 and shall be provided at all flared end sections twelve (12) inches or greater.
20. Rip-Rap with filter fabric in accordance with Section 281 of the IDOT Standard Specifications shall be provided at locations shown on the Plans.
21. The Contractor shall mark the locations of the ends of the storm service stubs with 4"x4" wood posts extending a minimum of three (3) feet above the ground. The top twelve (12) inches of post shall be painted white. The Contractor shall keep accurate records of all service connection locations.
22. Cleanouts shall be provided in locations shown on the Plans or as required by the Jurisdictional Agency.
23. All downspouts, footing drains, and outside storm drains shall discharge to the storm sewer or discharge at grade. No stormwater shall be discharged into the sanitary sewer system.
24. All storm structures including but not limited to frames and lids or grates, and cleanouts shall be adjusted as necessary by the Contractor to final finished grade elevation.
25. Perforated pipe underdrains shall be corrugated flexible HDPE pipe conforming to AASHTO M252 or M294, perforated polyethylene pipe of diameter specified on the Plans with a smooth interior and wrapped in a soil filter fabric sock supplied and installed by the Contractor.
26. Elevations of structures located in curb and gutter are flow line elevations.
27. Elevations of flared end sections are provided at the extreme outer end of the flared end section.
28. All storm sewers and related appurtenances shall be thoroughly cleaned to the satisfaction of the Village/City, Owner, and Engineer as necessary during construction and at the end of the project and prior to the final acceptance.

No.	Date	Revision

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GENERAL NOTES AND SPECIFICATIONS

BRIARWOOD LANE RE-ALIGNMENT AND SALT CREEK CROSSING REPLACEMENT PLANS
PALATINE TOWNSHIP, ILLINOIS

Project Manager:	KAS
Engineer:	JDT
Date:	10/31/2011
Project No.	08-041E
Sheet	2 / 21

PAVEMENT, CURB & GUTTER, AND WALKS

1. All work under this Section shall be performed in accordance the IDOT Standard Specifications or as specified in the Plans.
2. Concrete curb or curb and gutter shall be constructed in accordance with the Plans and Section 606 of the IDOT Standard Specifications. A ¾" pre-molded fiber joint filler along with two (2) 18" long x ½" (#4) epoxy coated smooth round dowel bars with greased end caps, centered on joint, shall be provided at expansion joints. Expansion joints shall be provided at a maximum of sixty (60) foot intervals and at all points of curvature and tangency, curb returns, five (5) feet either side of edge of structures, and at the end of each pour. Construction joints shall be provided at maximum twenty (20) foot intervals.
3. Where proposed curb or curb and gutter connects to an existing curb or curb and gutter, the existing curb or curb and gutter shall be saw-cut and then two 18" long x ½" (#4) epoxy coated smooth round dowel bars with greased end caps shall be drilled and installed nine (9) inches into the existing and proposed curb. Bars shall be installed in a location similar to that of the expansion joint in the curb or curb and gutter as applicable.
4. All curb and curb and gutter constructed over a utility trench shall be reinforced with two (2) #4 epoxy coated reinforcing bars for a length of ten (10) feet centered over the trench or as shown on the plans.
5. Reversed pitched curb and gutter shall be installed in areas where pavement slopes away from the curb.
6. Sidewalks and walks shall be constructed in accordance with the Plans and Section 424 of the IDOT Standard Specifications. Concrete sidewalks and walks shall be thickened to a minimum of 6" at all driveways. All sidewalks and walks shall be IDOT Portland Cement Concrete, Class SI, on compacted aggregate base course as shown on the Plans. Scored contraction joints shall be provided at five (5) foot intervals or as specified in the Plans. Expansion joints consisting of a ½" pre-molded fiber joint filler shall be provided at maximum fifty (50) foot intervals, and adjacent to concrete curbs, drives, foundations, ramps, etc, as well as when meeting existing concrete walks.
7. Sidewalks and walks constructed over a utility trench shall be reinforced with three (3) #4 round epoxy coated reinforcing bars for a length of ten (10) feet centered over the utility trench or as shown on the plans.
8. Curb ramps accessible to the disabled with raised truncated dome detectable warning surface of standard brick red color or other contrasting color shall be provided at all locations where sidewalk meets curb and at other locations shown on the Plans in accordance with the Illinois Accessibility Code (IAC), latest edition and IDOT Standard 424001, latest revision.
9. Curing and protection of all exposed concrete surfaces shall be in accordance with the IDOT Standard Specifications. No "honey-combing" or other similar failures of the concrete surfaces will be accepted.
10. Aggregate base course shall be in accordance with the Plans and Section 351 of the IDOT Standard Specifications. Aggregate base course material shall be CA-6, Type B, 100% crushed gravel conforming to Section 1004 of the IDOT Standard Specifications.
11. Bituminous binder and surface courses shall be Hot Mix Asphalt (HMA) of type and compacted thickness as specified in the Plans and shall be constructed in accordance with Section 406 of the IDOT Standard Specifications. The surface course shall be made with virgin materials; no recycled materials shall be allowed unless specified otherwise on the Plans. The Contractor shall provide and pay for the services of a competent paving laboratory to design and supervise the control of the paving mixture. All paving materials and mixes shall be IDOT certified.
12. Portland cement concrete (PCC) pavement shall be Class PV with reinforcement as specified on Plans and be constructed in accordance with Section 420 of the IDOT Standard Specifications.
13. All concrete work shall be finished with a broom finish unless specified otherwise in the Plans.
14. The Contractor shall saw-cut the exposed edges of all existing pavement adjacent to any proposed pavement, apron, sidewalk, curb and gutter or similar to provide a smooth, clean edge that is free of loose material. A proper transition butt joint and/or taper shall also be provided as necessary. Refer to butt joint detail for additional information.
15. The testing of the subgrade, aggregate base course, bituminous aggregate material, binder course, surface course, and concrete work shall be required and be performed in accordance with the IDOT Standard Specifications and requirements of the applicable Jurisdictional Agency. A qualified testing firm shall be employed to perform the required tests, ensure quality and conformance, and provide the results to the Engineer, Owner, and Jurisdictional Agency. The Contractor shall provide the Owner with a construction schedule and shall coordinate all required testing with the testing firm.
16. Prior to the commencement of any paving activities, a proof-roll must be performed by the Contractor and approved by the Village/City or applicable Jurisdictional Agency, and the Owner. All areas not passing the proof-roll shall be remediated as recommended by the Soils/Geotechnical Engineer and approved by the Owner. Any remediate areas shall be re-tested.
17. Prior to installation of the aggregate base course:
    a. The subgrade shall be prepared in accordance with Section 301 of the IDOT Standard Specifications.
    b. The Contractor shall be responsible for all subgrade compaction and preparation to within 0.1-ft of the proposed subgrade elevation. Subgrade shall be compacted to a minimum 95% of the modified proctor density in accordance with ASTM D1557.
    c. Sub-grade shall pass a proof-roll and any unsuitable areas in the subgrade shall be remediated as recommended by the Soils/Geotechnical Engineer and approved by the Owner.
18. Prior to the installation of the binder course:
    a. The aggregate base course shall be prepared in accordance with Section 351 of the IDOT Standard Specifications.
    b. The aggregate base course shall be clean and dry.
    c. The bituminous priming material shall be prepared and applied according to Section 403 of the IDOT Standard Specifications.
    d. The Contractor shall prime the aggregate base course at a rate of 0.25 gallons per square yard prior to the placement of the binder course.
    e. The binder course shall be placed only when the temperature in the shade is at least 40° F and the forecast is for rising temperatures.
19. Prior to the installation of the surface course:
    a. The Contractor shall patch and repair all damaged and failed areas in the binder course to the satisfaction of the Village/City or applicable Jurisdictional Agency, and the Owner.
    b. The Contractor shall repair all damaged curb and gutter or other concrete pavement to the satisfaction of the Village/City or applicable Jurisdictional Agency, and the Owner.
    c. Structures within pavement shall be adjusted to final surface grade.
    d. The Contractor shall clean and prime the binder course at a rate of 0.05 gallons per square yard prior to the placement of the surface course.
    e. The surface course shall be placed only when the air temperature in the shade is at least 45° F and the forecast is for rising temperatures.
20. Pavement marking/striping:
    a. All Pavement markings shall be in accordance with Section 780 of the IDOT Standard Specifications and the MUTCD, and be of the material type, size and color specified on the Plans.
    b. Pavement marking on freeways shall be placed with truck-mounted equipment. Markings on roads other than freeways may be placed with either truck-mounted or hand-operated equipment.
    c. Before applying the pavement marking material, the pavement shall be clean, dry, and free of debris or any other material that would reduce the adhesion of the markings on the pavement.
    d. Pavement markings shall be applied in accordance with the manufacturer's recommended instructions.
    e. Pavement markings shall be uniform and have clean, straight edges.
    f. Pavement marking words and symbols shall conform closely to the dimensions and spacing specified in the MUTCD, IDOT Standard Details, and the Plans.
    g. Deviations from the required dimensions and spacing or other departures from reasonable standards of professionalism will be cause for rejection by the Engineer.
21. Handicapped stalls shall be striped and signed in accordance with the Illinois Accessibility Code (IAC), latest edition and any other applicable ADA guidelines. Handicapped stalls shall be a minimum of sixteen (16) feet wide and signage shall be affixed to a post permanently mounted in the ground or wall and located in the center of the space no further than five (5) feet from the front of the accessible space. The minimum height to the bottom of the fine sign shall be four (4) feet. Handicapped stall striping shall be yellow in color.
22. All signs shall be in accordance with Section 720 of the IDOT Standard Specifications and the MUTCD, and be of the material type, size, and color specified on the Plans.
23. Raised reflective pavement markers shall be in accordance with Section 781 of the IDOT Standard Specifications and be recessed into the pavement as required by the applicable Jurisdictional Agency.
24. Pavement marking and marker removal shall be in accordance with Section 783 of the IDOT Standard Specifications.
25. All pavements, curb, curb and gutters, walks, etc. shall be cleaned to the satisfaction of the Village/City or applicable Jurisdictional Agency, Owner, and Engineer as necessary during construction and at the end of the project prior to the final acceptance.

THREE SIDED PRECAST CONCRETE STRUCTURE

This work shall consist of furnishing and installing the three-sided precast concrete structure including but not limited to excavation, bedding, backfill, footings and pedestals, precast three sided sections, wingwalls, headwalls/parapet walls, pedestrian rail and other structural components as well as waterproofing membrane system according to applicable portions of the IDOT Standard Specifications and as indicated on the plans. All three-sided precast concrete structures, precast headwalls/parapet walls, precast wingwalls and precast footings shall be produced according to the Department's latest Policy Memorandum "Quality Control/ Quality Assurance Program for Precast Products".

The three-sided concrete structure shall be designed according to the AASHTO specifications, as shown on the plans, and shall include the effects of unyielding foundation conditions for the sequence of construction anticipated. Refer to Plans as well as ICPC/Hy-Span Drawings (By Others) for additional information.

The Contractor shall be responsible for diverting the water from the construction area using a method meeting the approval of the Engineer. The cost of diverting the water and dewatering with sediment removal shall be considered as included in the contract unit price bid for the three sided structure being constructed and no additional compensation will be allowed. Refer to Crossing Plan and SWPPP for additional information.

For structures over water, 3 in. (75mm) diameter drain openings, spaced at 8 ft (2.4 m) centers, 2 ft (600 mm) above the flow line shall be provided according to Article 503.11.

Except as follows, all joints between segments shall be sealed according to Article 540.06 with 13 inch (330 mm) wide external sealing bands. When the minimum fill over the structure, between the edges of the shoulders, is less than or equal to 3 ft. (1 m), the top joints between segments shall also be secured with a previously approved mechanical connection. The mechanical connection shall be used to connect a minimum length of 12 ft. (3.65 m) of exterior segments at each end of the structure. There shall be a minimum of 4 mechanical connections per joint with a maximum spacing of 10 ft. (3 m). All plates, shapes, and hardware shall be galvanized or stainless steel. If the design of the structure also requires grouted shear keys, the keyway shall be cast in the top slab of the segments and grouted according to Article 504.06(a).

Three sided precast concrete structures located in areas with a seismic acceleration coefficient A>0.09 shall satisfy the following requirements:

1. The structure shall be connected to the footing/pedestal 2 ft. (600 mm) from the outermost exterior edge of the structure at all four corners with a galvanized rigid mechanical connection subject to the approval of the Engineer. This connection shall be located on the interior face of the segment to allow for future inspection.

2. All top joints of exterior segments within a length of 12 ft. (3.65 m) at each end of the structure, regardless of the fill cover, shall be mechanically connected as previously described. The mechanical connection is subject to the approval of the Engineer.

Shop drawings for three sided precast concrete structures including but not limited to footings and pedestals, precast three sided sections, wingwalls, headwalls, parapet walls, pedestrian rail and other structural components shall be submitted according to Article 1042.03(b) and Article 105.04 of the Standard Specifications. The supplier selected by the Contractor shall submit complete design calculations and shop drawings, prepared and sealed by an Illinois Licensed Structural Engineer, for approval.

The system chosen by the contractor shall provide a hydraulically equivalent waterway opening to that specified on the plans. Evidence of equivalency shall also be provided in writing to the Engineer for review and approval prior to ordering any materials.

When precast concrete substructure is specified, the Contractor may choose to substitute cast-in-place for precast headwalls, wingwalls and footings unless otherwise specified on the plans. No additional compensation for these substitutions will be allowed and the Contractor shall submit complete design calculations and shop drawings, prepared and sealed by an Illinois Licensed Structural Engineer, for approval.

When Cast-in-place concrete substructure is specified, the Contractor may choose to substitute precast for cast-in-place headwalls, wingwalls and footings unless otherwise specified on the plans. No additional compensation for these substitutions will be allowed and the Contractor/supplier shall submit complete design calculations and shop, drawings prepared and sealed by an Illinois Licensed Structural Engineer, for approval.

If a precast footing is used, it shall be built to the manufacturers specifications and the Contractor shall prepare a 6 in. (150 mm) thick layer of compacted granular material placed below the bottom of the footing. The porous granular material shall be gradation CA 7, CA 11, or CA 18 and shall be placed to extend at least 2 ft. (600 mm) beyond the limits of the precast footing. There shall be no additional compensation for the porous granular bedding material.

The excavation and backfill for three sided precast concrete structures shall be according to Section 502 of the Standard Specifications and any additional backfilling requirements based on the precast supplier's design. All construction inspection and material certification necessary to verify these additional backfilling requirements in the field shall be the responsibility of the supplier. The three-sided precast concrete structure shall be placed according to applicable requirements of Article 542.04(d) of the Standard Specifications. When multi-spans are used a 3 in. (75 mm) minimum space shall be left between adjacent sections. After the precast units are in place and the backfill has been placed to midheight on each exterior side of the barrel, the space between adjacent units shall be filled with Class SI concrete. The Class SI concrete shall be according to Section 1020, except the maximum size of the aggregate shall be 3/8 in. (9.5 mm).

Three Sided Precast Structure Pay Item shall include all work, labor and materials necessary beyond demolition of existing structure required to fabricate and install the three sided precast structure including but not limited to structural shop drawings and calculations, in-stream work plan, cofferdams, dewatering, fabrication of precast components as well as construction and installation of all components of structure from footings through the waterproofing membrane system including but not limited to excavation for footings, installation of footings and pedestals, culvert sections, wingwalls, parapet walls with ashlar finish with pedestrian railing and lighting, structure backfill, waterproofing membrane system, etc. Removal and and disposal of unsuitable materials for structures, if required by Geotechnical/Soils Engineer will be paid for separately.

No.	Date	Revision

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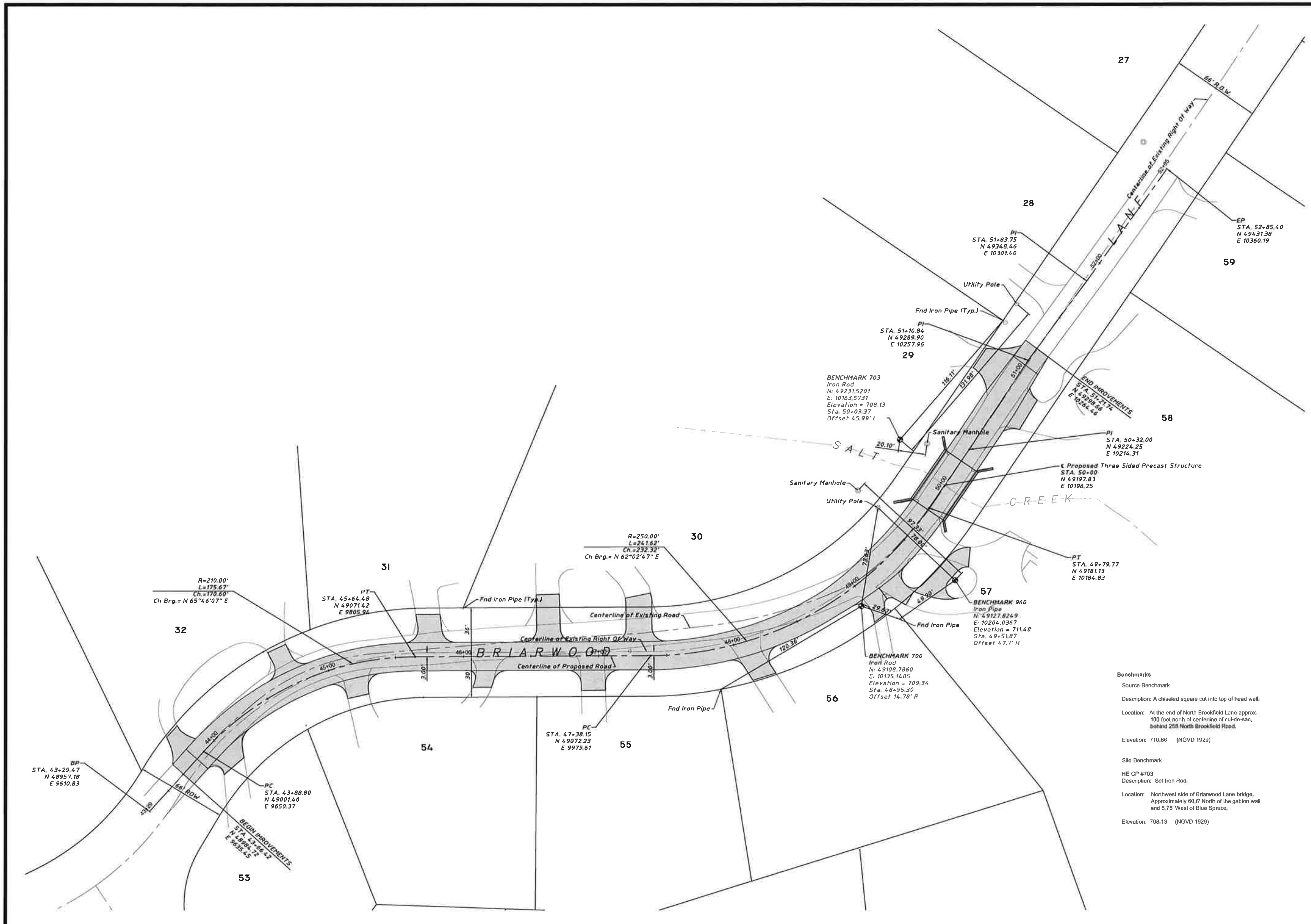
GENERAL NOTES AND SPECIFICATIONS

BRIARWOOD LANE RE-ALIGNMENT AND SALT CREEK CROSSING REPLACEMENT PLANS

PALATINE TOWNSHIP, ILLINOIS

Project Manager:	K A S
Engineer:	J D T
Date:	10/31/2011
Project No.	08-041E
Sheet	3 / 20

Plot Date: Oct 31, 2011 - 11:53am Plotted By: josh t
File Name: P:\2008\08041\Drawings\Final Engineering\08041E Title Notes Details.dwg



Benchmarks

Source Benchmark

Description: A chiseled square cut into top of head wall.

Location: At the end of North Brookfield Lane approx. 100 feet north of centerline of cul-de-sac, behind 258 North Brookfield Road.

Elevation: 710.66 (NGVD 1929)

Site Benchmark

HE CP #703
Description: Set Iron Rod.

Location: Northwest side of Briarwood Lane bridge. Approximately 60.6' North of the gabion wall and 5.75' West of Blue Spruce.

Elevation: 708.13 (NGVD 1929)

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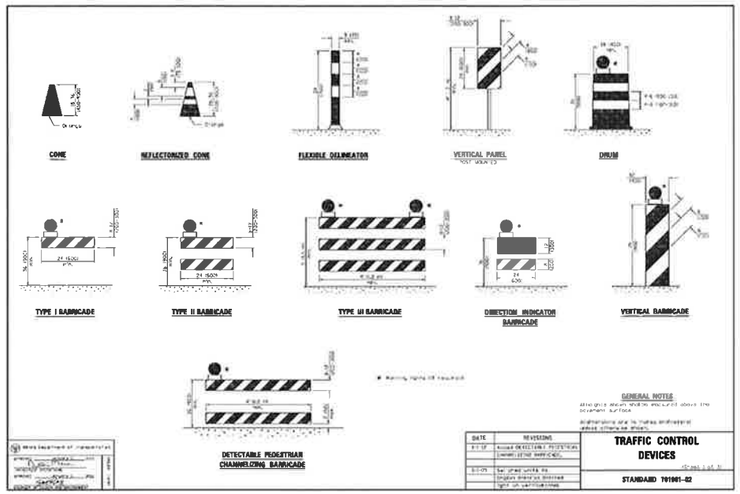
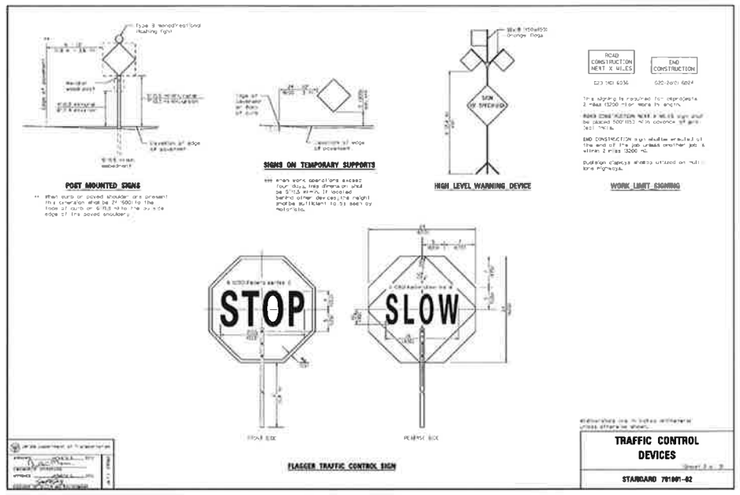
ALIGNMENT, TIES AND BENCHMARKS

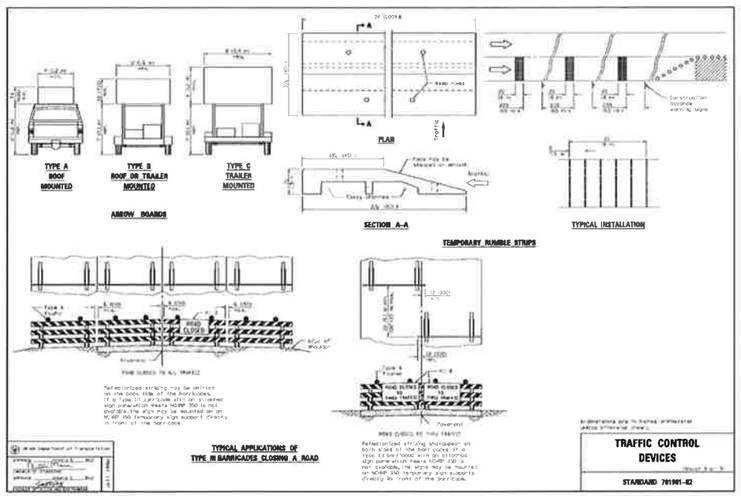
BRIARWOOD LANE RE-ALIGNMENT AND SALT CREEK CROSSING REPLACEMENT PLANS

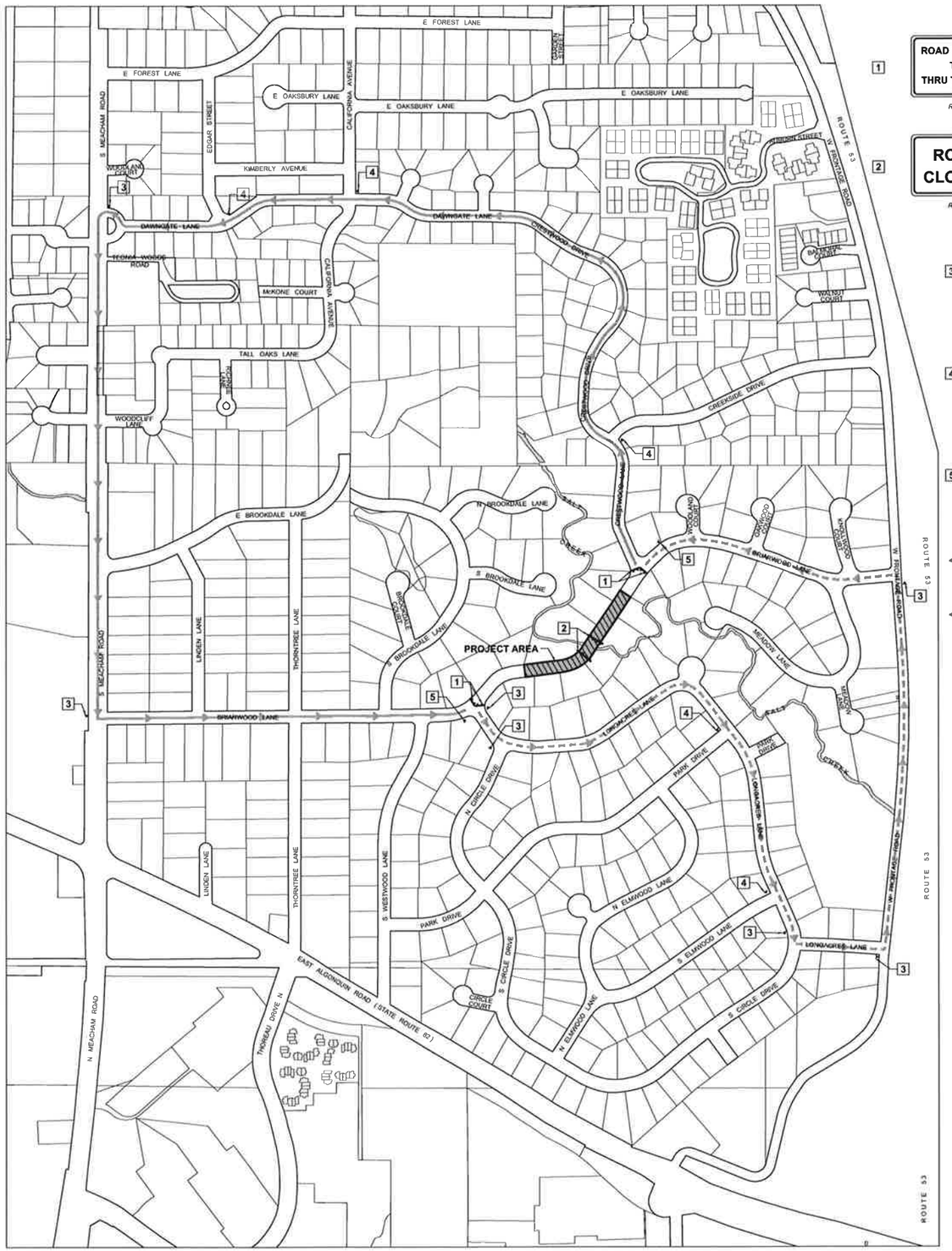
PALATINE TOWNSHIP, ILLINOIS

Project Manager: KAS
Engineer: JDT
Date: 10/31/2011
Project No. 08-041E
Sheet 4/21









ROAD CLOSED TO THRU TRAFFIC — On Type III Barricade With Flashing Warning Light (2 Staggered Across Road - See Sheet X)
R11-4

ROAD CLOSED — On Type III Barricade With Flashing Warning Light (Barricades Shall Be Installed End To End Across Road)
R11-2

BRIARWOOD LN DETOUR ←
M4-9L

BRIARWOOD LN DETOUR ↑
M4-9

BRIARWOOD LN DETOUR →
M4-9R

Briarwood Lane Eastbound Detour Routing

Briarwood Lane Westbound Detour Routing

Note:
See Sheet 6 for detailed signage, barricades, lights and other traffic control devices in vicinity of project area.

NORTH
150 0 300
Scale: 1" = 300'

No.	Date	Revision

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MAINTENANCE OF TRAFFIC PLAN

BRIARWOOD LANE RE-ALIGNMENT AND SALT CREEK CROSSING REPLACEMENT PLANS
PALATINE, ILLINOIS

Project Manager:	KAS
Engineer:	JDT
Date:	10/31/2011
Project No.	08041E
Sheet	5 / 21

Plot Date: Oct 31, 2011 - 12:19pm Plotted By: jon s
File Name: P:\2008\08041\Drawing\Final\Engineering\08041E - Traffic Plan.dwg

LEGEND

- Work Area
- Type III Barricade with Flashing Warning Light
- Sign on Portable or Permanent Support
- Flashing Warning Light

1. BRIARWOOD LN CLOSED FOR CONST. AT SALT CREEK FROM XX-XX-XX TO XX-XX-XX — 4' x 2' with 2" Black Letters on Orange Background. Note: This sign Shall Be Posted no Less Than 1 Week Prior To Posted Closure Dates.
2. ROAD CLOSED TO THRU TRAFFIC (R11-4) — On Type III Barricade With Flashing Warning Light (2 Staggered Across Road)
3. ROAD CLOSED (R11-2) — On Type III Barricade With Flashing Warning Light (Barricades Shall Be Installed End To End Across Road)
4. ROAD CLOSED AHEAD (W20-3) — With Flashing Warning Light
5. STOP (R1-1)
6. DETOUR (M4-9L)
7. DETOUR (M4-9)
8. DETOUR (M4-9R)
9. DETOUR (M4-10L)
10. DETOUR (M4-10R)

Notes:

1. All signs, barricades, lights, and other traffic control devices shall be in accordance with "Manual on Uniform Traffic Control Devices for Streets and Highways", latest edition and "Standard Specifications for Road and Bridge Construction", latest edition.
2. Locations of traffic control devices are approximate. Final location shall be selected by contractor based on field conditions and as approved by Palatine Township Road District.
3. Access to existing driveways/residences shall be maintained overnight and whenever practical. Access shall also remain open for mail delivery. Contractor to provide notification to and work with residents as necessary.
4. Contractor shall notify Emergency Services (Police, Fire, Etc.) as well as the School District prior to start of construction so they are aware of closure.
5. The cost of furnishing, installing, maintaining, and relocation of traffic control devices, as well as providing temporary access to residents, shall be included in the cost of traffic control.

NORTH

Scale: 1" = 60'

No.	Revision	Date

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MAINTENANCE OF TRAFFIC PLAN

BRIARWOOD LANE RE-ALIGNMENT AND SALT CREEK CROSSING REPLACEMENT PLANS

PALATINE, ILLINOIS

Project Manager:	KAS
Engineer:	JDT
Date:	10/31/2011
Project No.	08041E
Sheet	6 / 21

Plot Date: Oct 31, 2011 - 12:39pm Plotted By: garth
File Name: P:\2008\08041\Drawings\Final Engineering\08041E Traffic Plan.dwg

PAVING LEGEND

PROPOSED BITUMINOUS PAVEMENT - BRIARWOOD LANE
- 2" HMA Surface Course, Mix "D", N70
- 4" HMA Binder Course, IL 19.0, N70
- 8" CA-6 Aggregate Base Course

PROPOSED BITUMINOUS DRIVEWAYS
- 2" HMA Surface Course, Mix "C", N50
- 6" CA-6 Aggregate Base Course

PROPOSED CONCRETE DRIVEWAYS
- 8" PCC Pavement
- 2" CA-6 Aggregate Base Course

BUTT JOINT
- Per Butt Joint and HMA Taper Details

No. | Date | Revision

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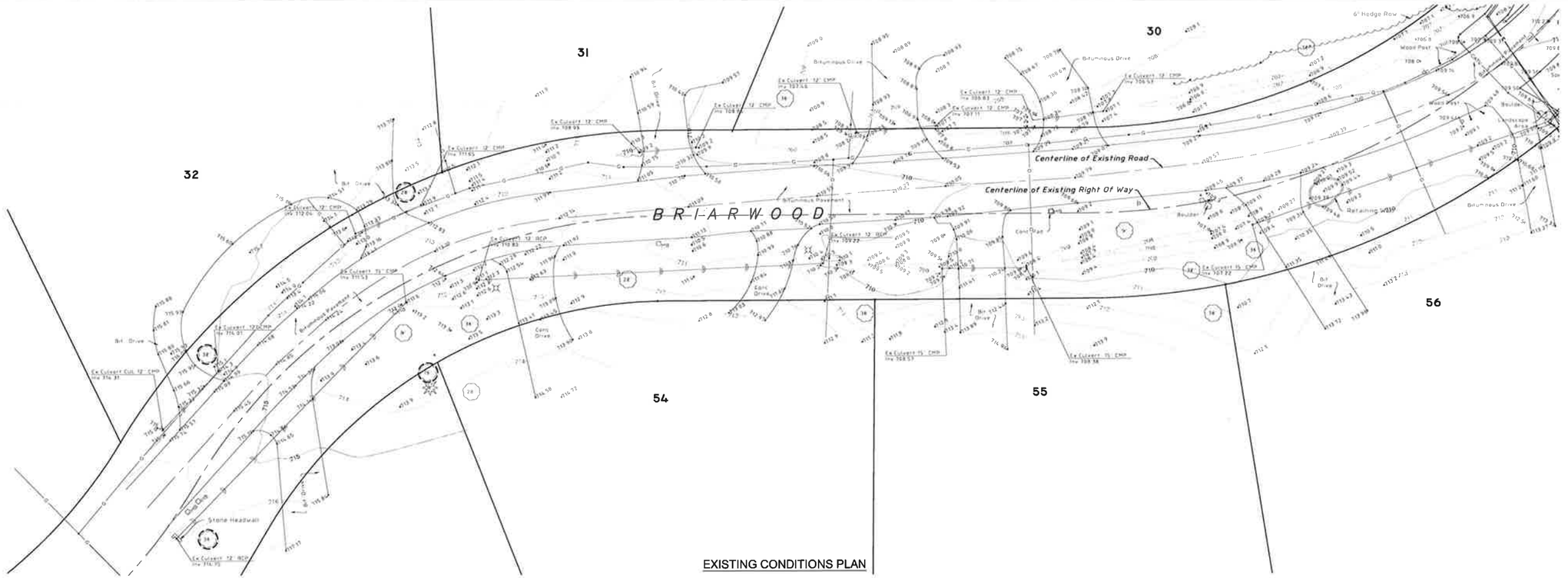
GEOMETRY AND PAVEMENT MARKING PLAN

BRIARWOOD LANE RE-ALIGNMENT AND SALT CREEK CROSSING REPLACEMENT PLANS

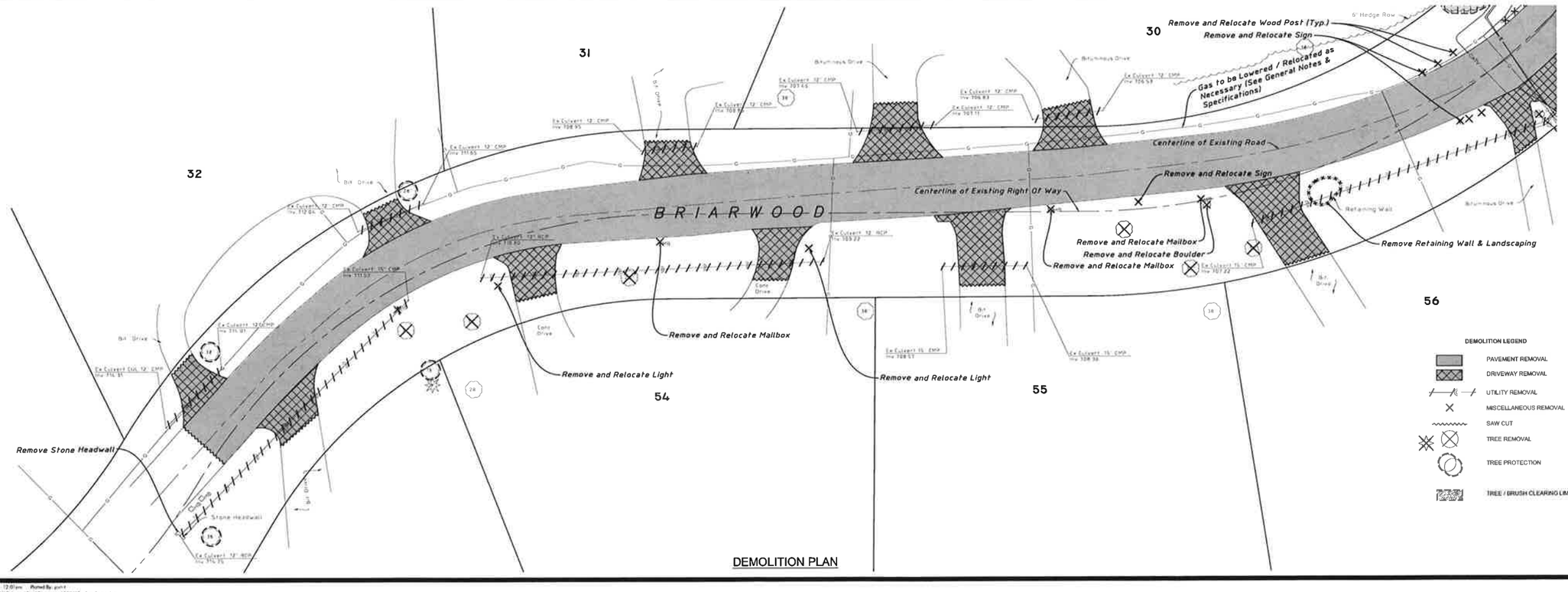
PALATINE TOWNSHIP, ILLINOIS

Project Manager:	K A S
Engineer:	J D T
Date:	10/31/2011
Project No.	08-041E
Sheet	7 / 21

Plot Date: Nov 02, 2011 10:43am Plotted By: josh t
File Name: P:\2008\08041\Drawing\Final Engineering\08041E Geo Demo.dwg



EXISTING CONDITIONS PLAN



DEMOLITION PLAN

NORTH
10 0 20
Scale: 1" = 20'

No.	Date	Revision

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EXISTING CONDITIONS AND DEMOLITION PLAN

BRIARWOOD LANE RE-ALIGNMENT AND SALT CREEK CROSSING REPLACEMENT PLANS
PALATINE TOWNSHIP, ILLINOIS

Project Manager:	K A S
Engineer:	J D T
Date:	10/31/2011
Project No.	08-041E
Sheet	8 / 21

Plot Date: Oct 31, 2011 - 12:01pm - Plotted By: gwhit
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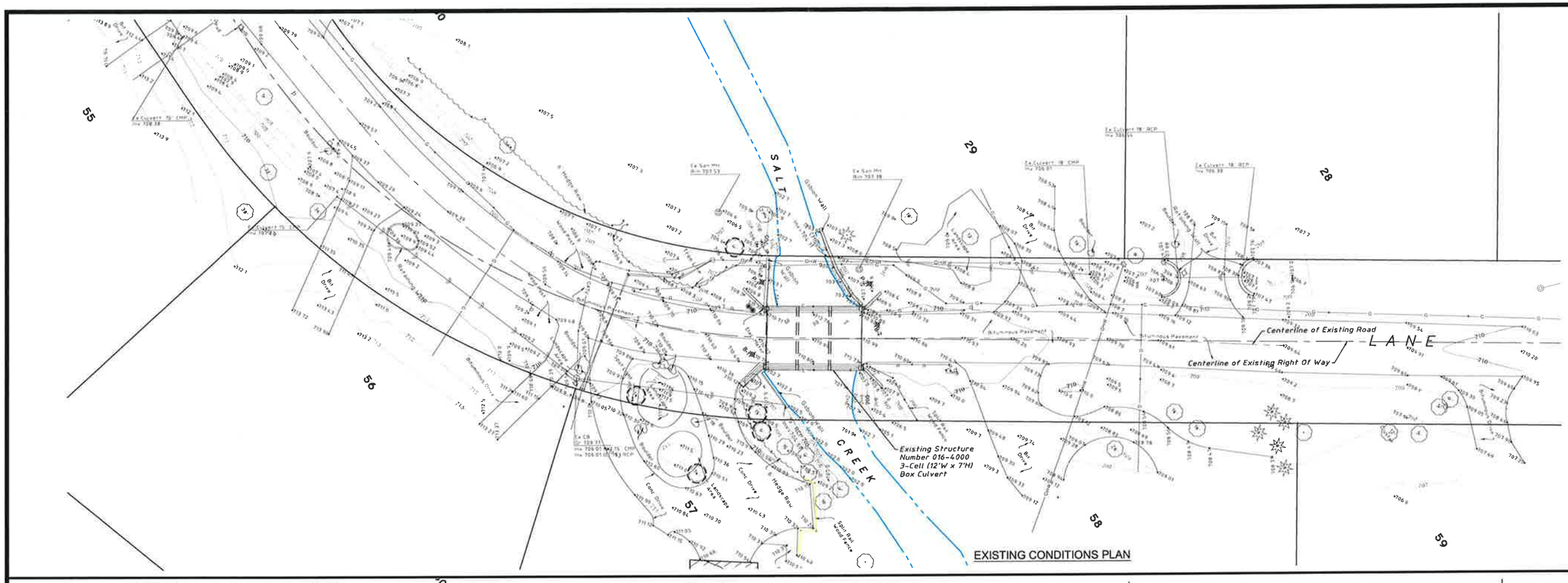
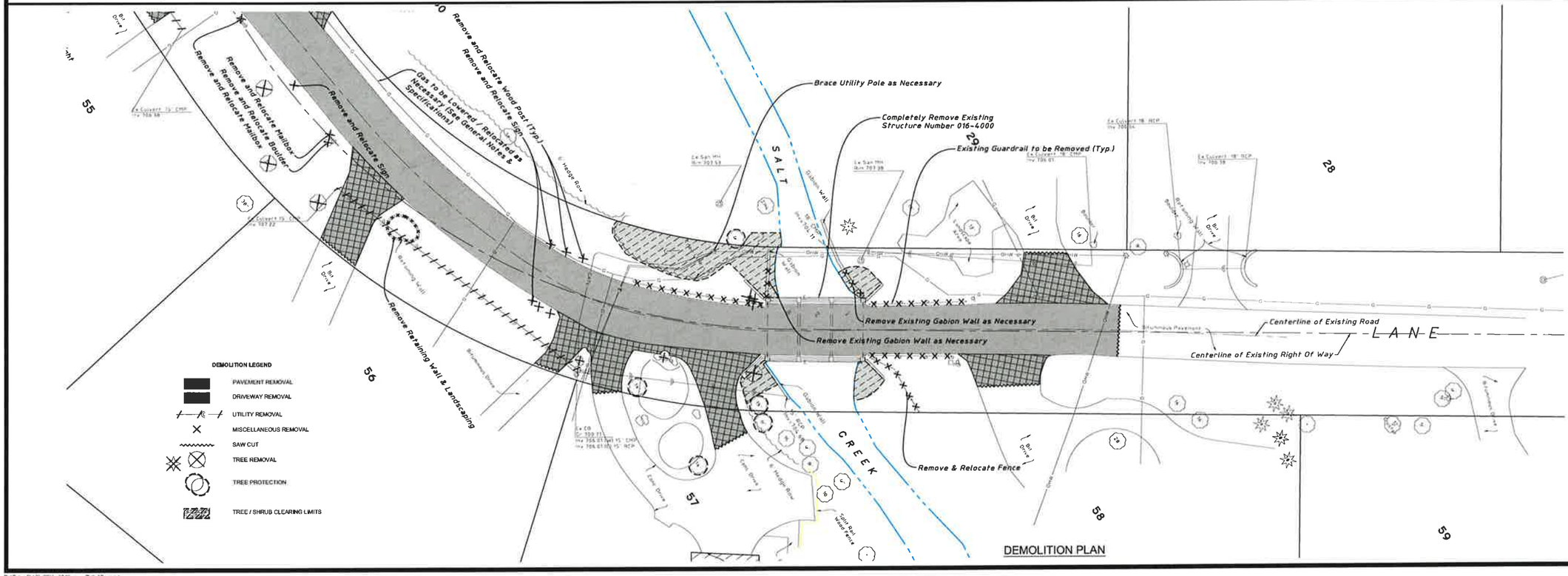


EXISTING CONDITIONS PLAN



DEMOLITION PLAN

NORTH
Scale: 1" = 20'

No.	Date	Revision

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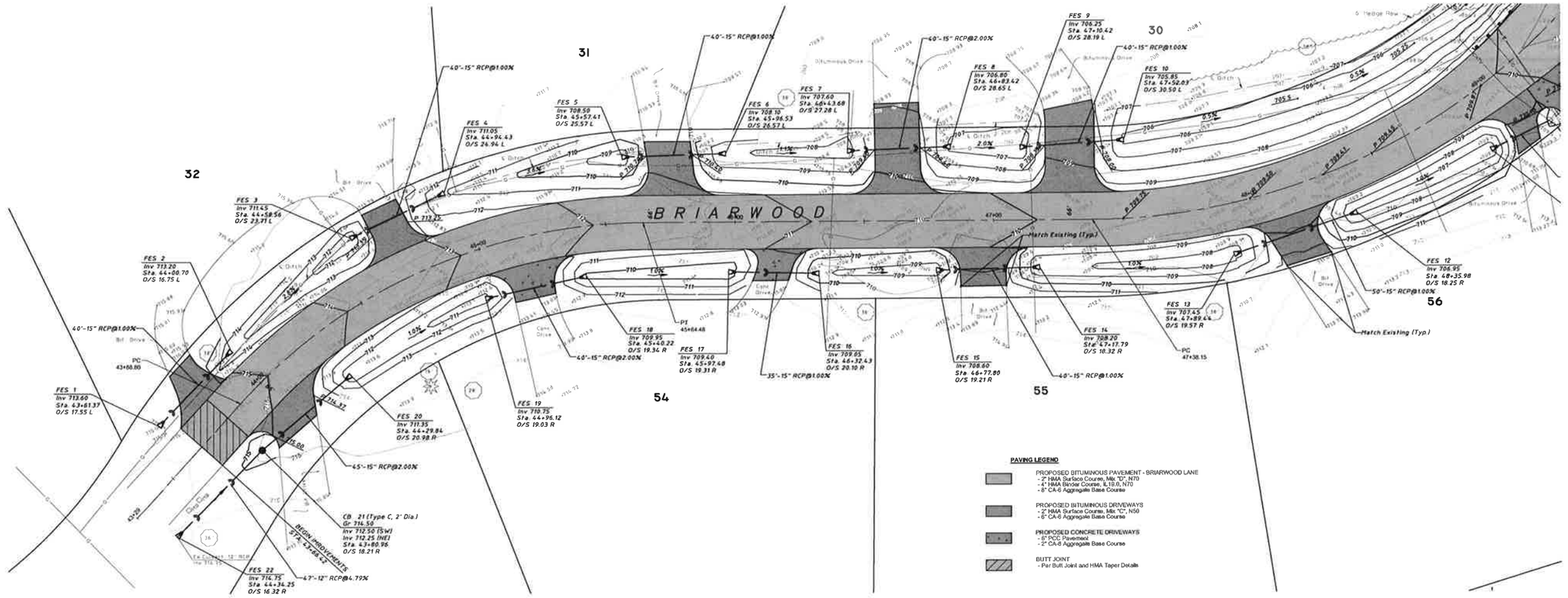
EXISTING CONDITIONS AND DEMOLITION PLAN

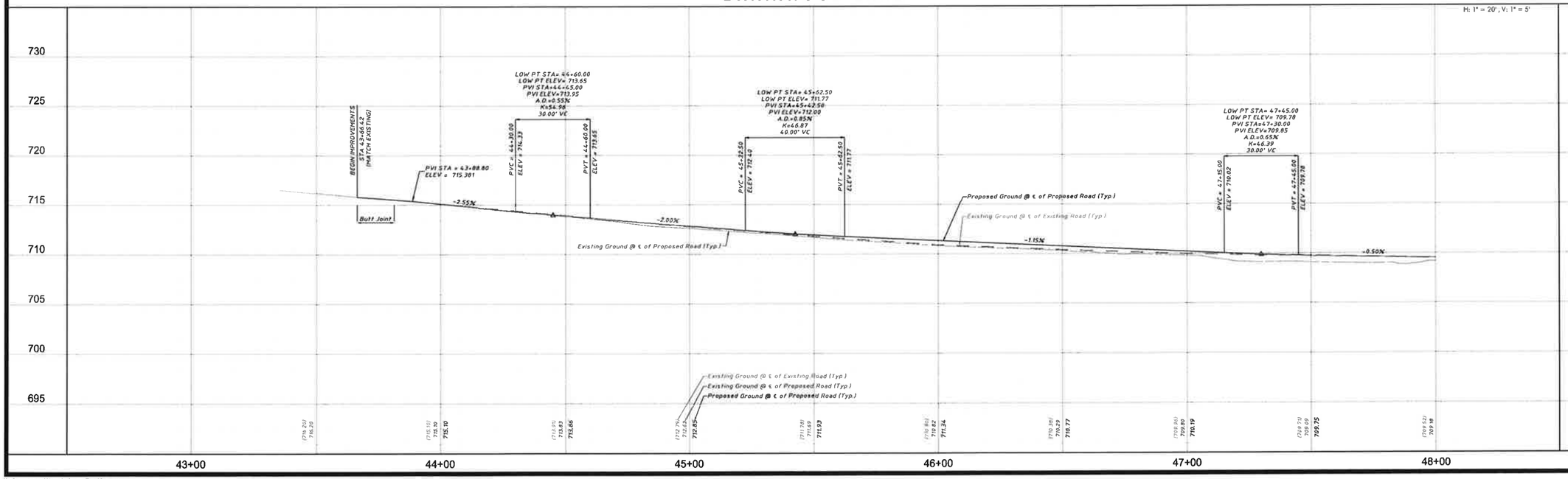
BRIARWOOD LANE RE-ALIGNMENT AND SALT CREEK CROSSING REPLACEMENT PLANS
PALATINE TOWNSHIP, ILLINOIS

Project Manager:	K A S
Engineer:	J D T
Date:	10/31/2011
Project No.	08-041E
Sheet	9 / 21

Plot Date: Oct 31, 2011 12:01 pm Plotted By: pat-k
File Name: P:\2008\08041\Drawings\Final Engineering\08041E Geo Demo.dwg



BRIARWOOD LANE



NORTH
Scale: 1" = 20'

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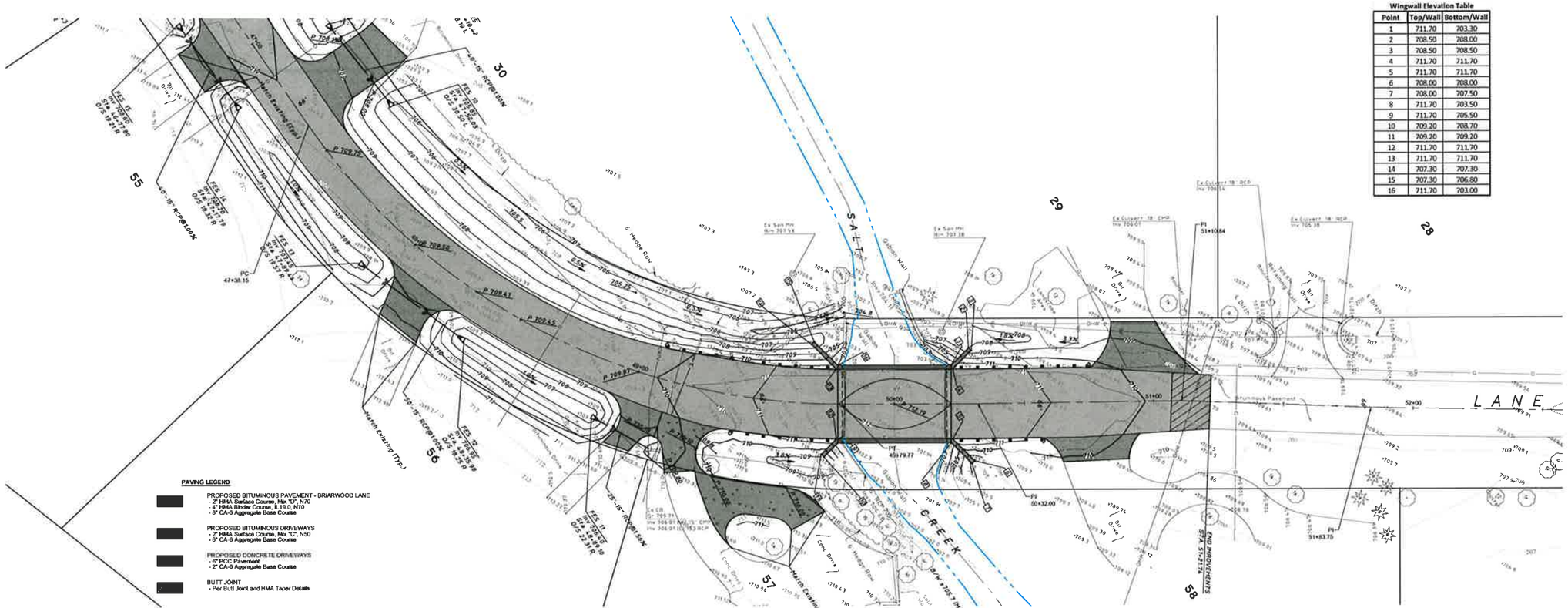
PLAN AND PROFILES - BRIARWOOD LANE STA. 43+66.42 THROUGH STA. 48+00

BRIARWOOD LANE RE-ALIGNMENT AND SALT CREEK CROSSING REPLACEMENT PLANS
PALATINE TOWNSHIP, ILLINOIS

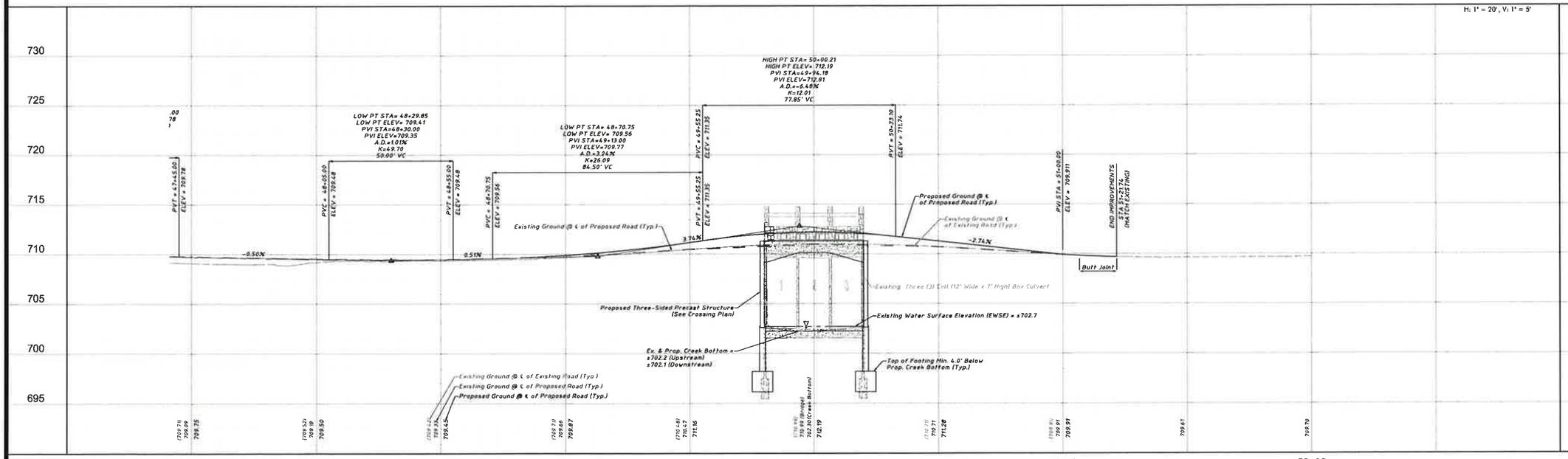
Project Manager:	K A S
Engineer:	J D T
Date:	10/31/2011
Project No.	08-041E
Sheet	10 / 21

Plot Date: Oct 31, 2011 - 11:45am Plotted By: pshi
File Name: P:\2008\08041\Drawings\Final Engineering\08041E Engineering.dwg

Wingwall Elevation Table		
Point	Top/Wall	Bottom/Wall
1	711.70	703.30
2	708.50	708.00
3	708.50	708.50
4	711.70	711.70
5	711.70	711.70
6	708.00	708.00
7	708.00	707.50
8	711.70	703.50
9	711.70	705.50
10	709.20	708.70
11	709.20	709.20
12	711.70	711.70
13	711.70	711.70
14	707.30	707.30
15	707.30	706.80
16	711.70	703.00



BRIARWOOD LANE



NORTH
Scale: 1" = 20'

No.	Date	Revision

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PLAN AND PROFILES - BRIARWOOD LANE STA. 48+00 THROUGH STA. 51+21.74

BRIARWOOD LANE RE-ALIGNMENT AND SALT CREEK CROSSING REPLACEMENT PLANS

PALATINE TOWNSHIP, ILLINOIS

Project Manager:	K A S
Engineer:	J D T
Date:	10/31/2011
Project No.	08-041E
Sheet	11 / 21

Plot Date: Nov 02, 2011 10:49am Plotted By: josh t
File Name: P:\2008\08041\Drawings\Final Engineering\08041E Engineering.dwg

H: 1" = 10' V: 1" = 5'

No.	Date	Revision

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CROSS SECTIONS - BRIARWOOD LANE STA. 43+66.42 THROUGH STA. 46+50

BRIARWOOD LANE RE-ALIGNMENT AND SALT CREEK CROSSING REPLACEMENT PLANS

PALATINE TOWNSHIP, ILLINOIS

Project Manager:	K A S
Engineer:	J D T
Date:	10/31/2011
Project No.	08-041E
Sheet	12 / 21

Plot Date: Oct 31, 2011 - 11:15am Plotted By: grant
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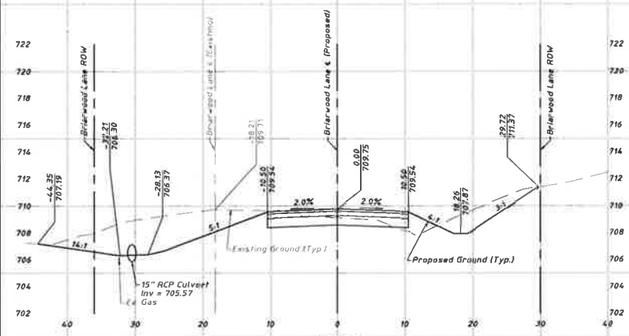

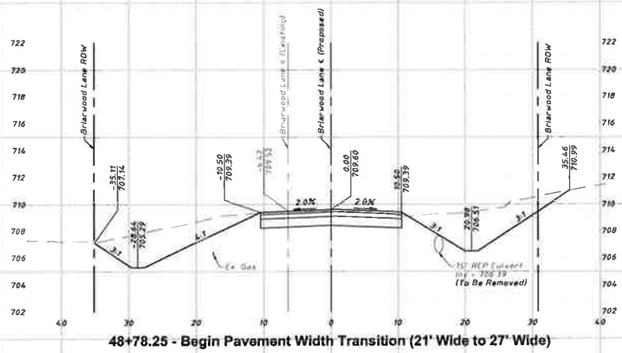

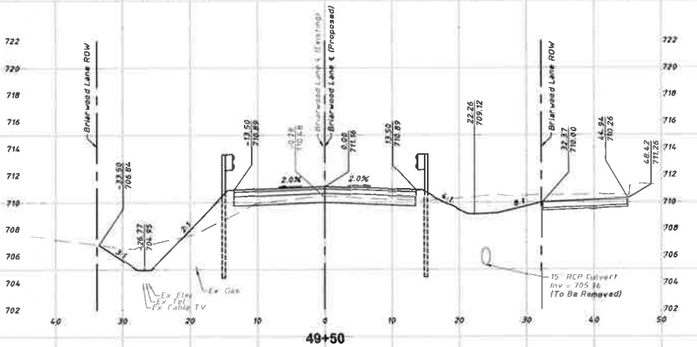

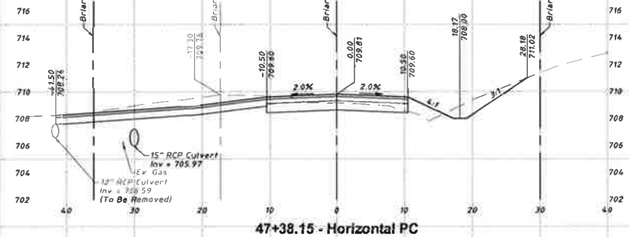

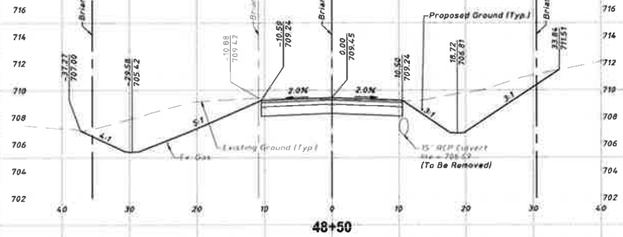

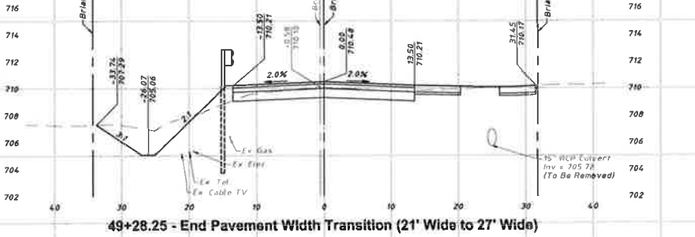

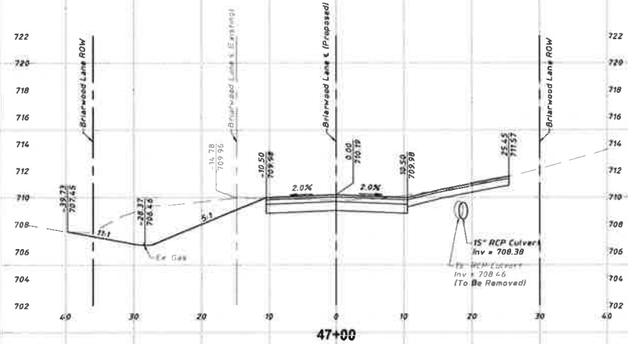

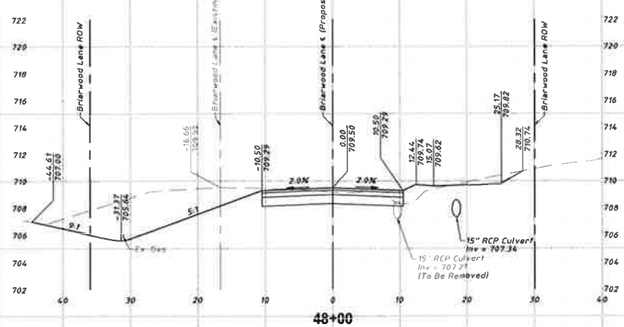

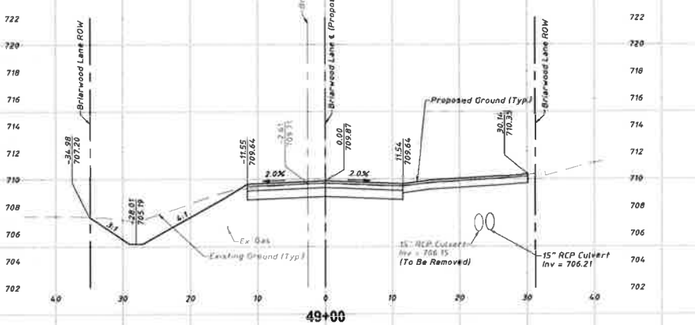

H: 1" = 10' V: 1" = 5'

No.	Date	Revision

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CROSS SECTIONS - BRIARWOOD LANE STA. 47+00 THROUGH STA. 49+50

BRIARWOOD LANE RE-ALIGNMENT AND SALT CREEK CROSSING REPLACEMENT PLANS

PALATINE TOWNSHIP, ILLINOIS

Project Manager:	K A S
Engineer:	J D T
Date:	10/31/2011
Project No.	08-041E
Sheet	13 / 21

Plot Date: Nov 02, 2011 10:56a Plotted By: grant
File Name: P:\2008\08041\Drawings\Final Engineering\08041E Engineering.dwg

50+21.75 - End Bridge

50+71.58 - Begin Pavement Width Transition (27' Wide to Match Existing)

51+21.74 - End Improvements (Match Existing)

50+00.00 - Center of Bridge

50+50

51+10.84 - Horizontal PI

49+79.77 - Horizontal PT

50+32.00 - Horizontal PI

51+00

H: 1" = 10' V: 1" = 5'

No.	Date	Revision

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CROSS SECTIONS - BRIARWOOD LANE
STA. 49+79.77 THROUGH STA. 51+21.74

BRIARWOOD LANE RE-ALIGNMENT AND
SALT CREEK CROSSING REPLACEMENT PLANS
PALATINE TOWNSHIP, ILLINOIS

Project Manager:	K A S
Engineer:	J D T
Date:	10/31/2011
Project No.	08-041E
Sheet	14 / 21

Plot Date: Nov 02, 2011 - 10:56am Plotted By: garh
File Name: P:\2008\08041\Drawings\Final Engineering\08041E Engineering.dwg

Lot 32 East Driveway (Sta. 44+73)

Lot 31 Driveway (Sta. 45+76)

Lot 32 West Driveway (Sta. 43+79)

Lot 54 East Driveway (Sta. 46+19)

Lot 53 Driveway (Sta. 44+07)

Lot 54 West Driveway (Sta. 45+19)

H: 1" = 10' V: 1" = 5'

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No	Date	Revision

CROSS SECTIONS - DRIVEWAYS
LOTS 31, 32, 53, 54

BRIARWOOD LANE RE-ALIGNMENT AND
SALT CREEK CROSSING REPLACEMENT PLANS
PALATINE TOWNSHIP, ILLINOIS

Project Manager:	K A S
Engineer:	J D T
Date:	10/31/2011
Project No.	08-041E
Sheet	15 / 21

Plot Date: Oct 31, 2011 - 11:15am Plotted By: pam
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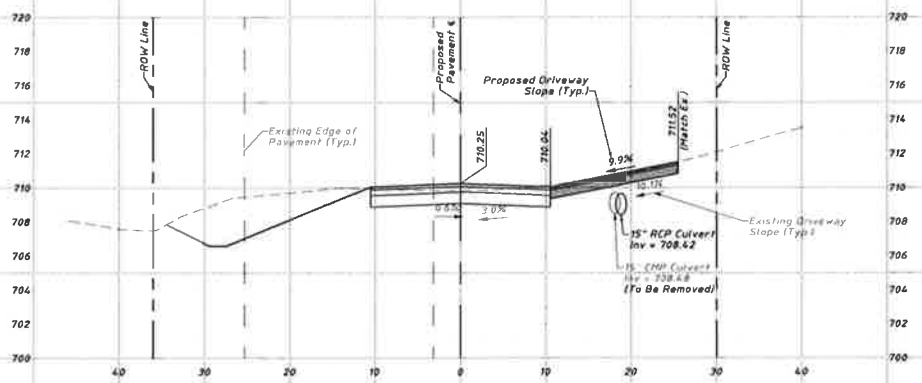
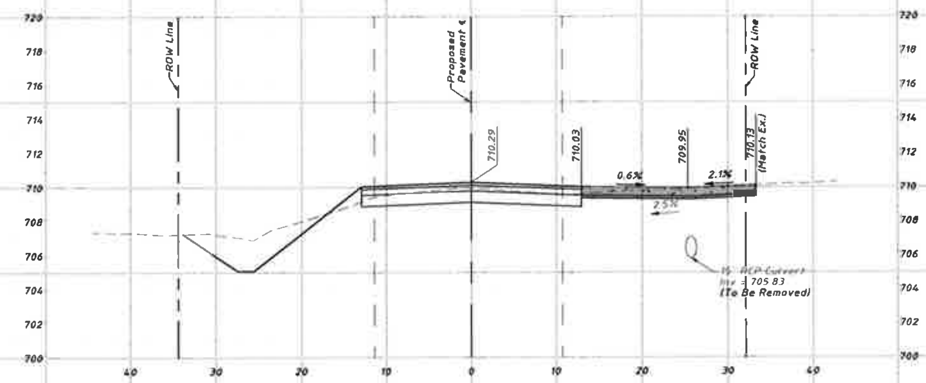
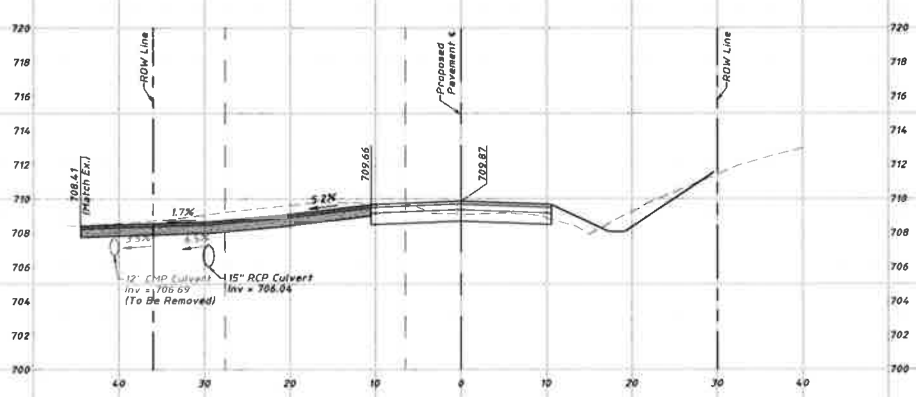


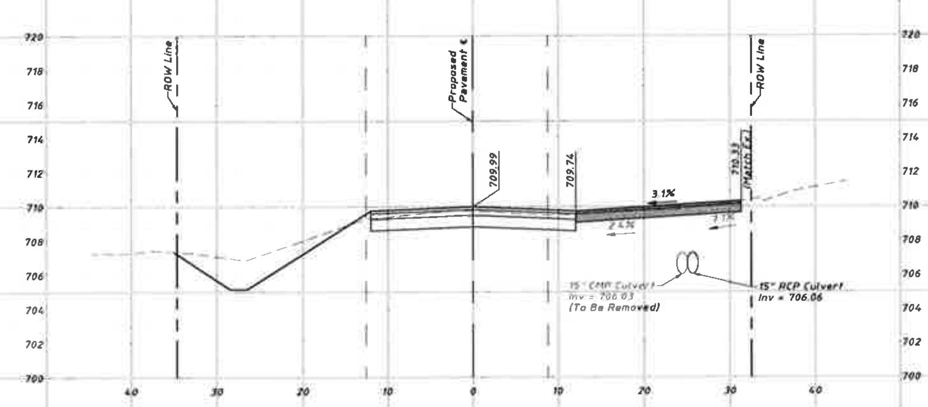
Lot 55 Driveway (Sta. 46+95)



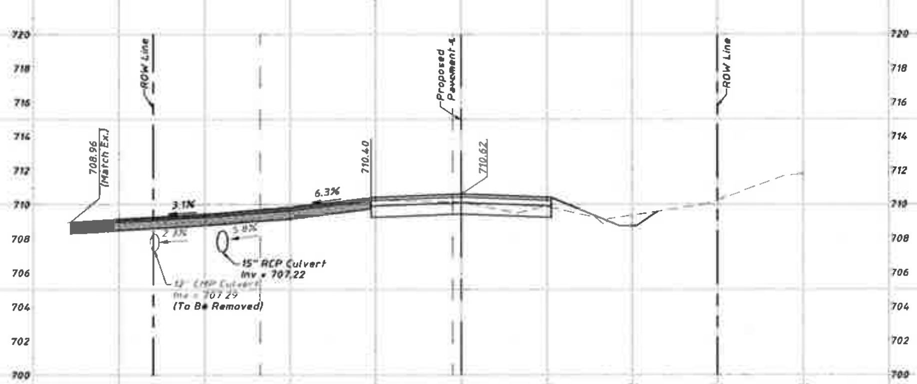
Lot 57 West Driveway (Sta. 49+21)



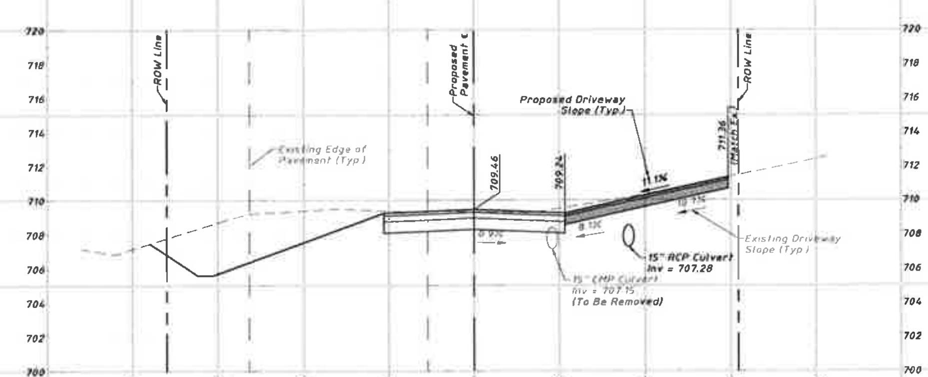
Lot 30 East Driveway (Sta. 47+30)



Lot 56 East Driveway (Sta. 49+07)



Lot 30 West Driveway (Sta. 46+63)



Lot 56 West Driveway (Sta. 48+09)

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CROSS SECTIONS - DRIVEWAYS
LOTS 30, 55, 56, 57 (WEST)

BRIARWOOD LANE RE-ALIGNMENT AND SALT CREEK CROSSING REPLACEMENT PLANS
PALATINE TOWNSHIP, ILLINOIS

Project Manager:	KAS
Engineer:	JDT
Date:	10/31/2011
Project No.	08-041E
Sheet	16/21

Plot Date: Oct 31, 2011 - 11:15am Plotted By: [illegible]
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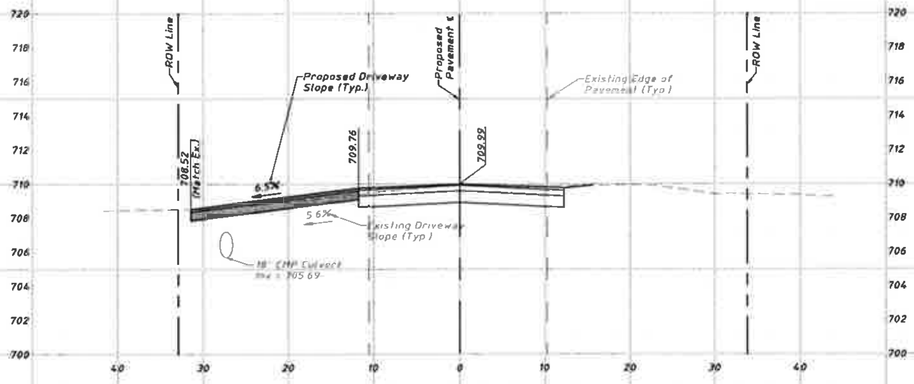
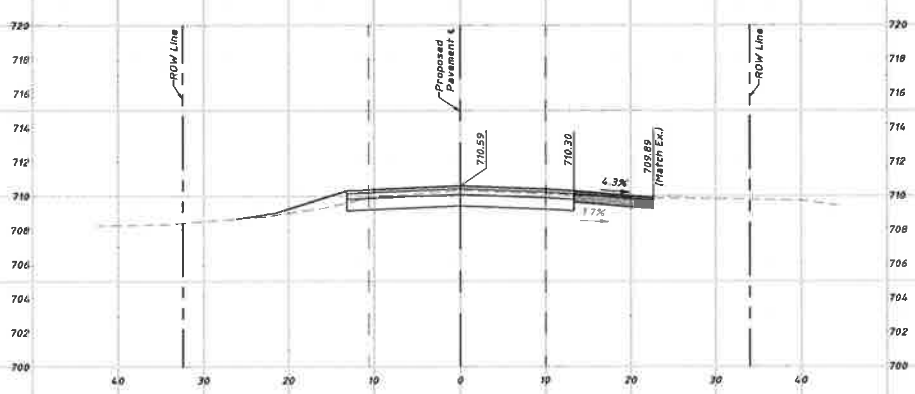
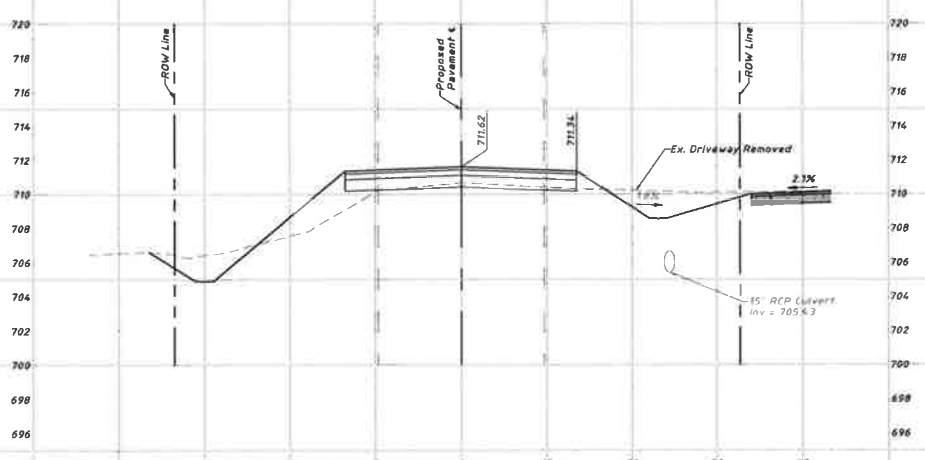


Lot 29 Driveway (Sta. 50+97)



Lot 58 Driveway (Sta. 50+76)



Lot 57 East Driveway (Sta. 49+63)

H: 1" = 10' V: 1" = 5'

CROSS SECTIONS - DRIVEWAYS
LOTS 2, 57 (EAST), 58

BRIARWOOD LANE RE-ALIGNMENT AND
SALT CREEK CROSSING REPLACEMENT PLANS
PALATINE TOWNSHIP, ILLINOIS

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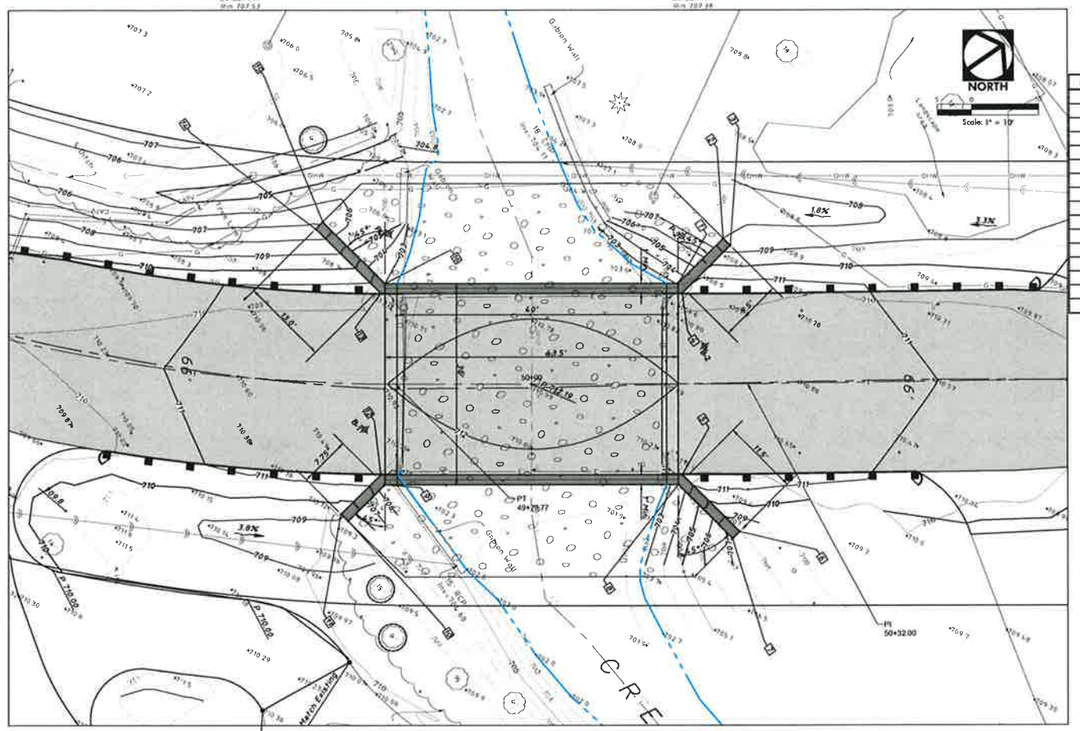
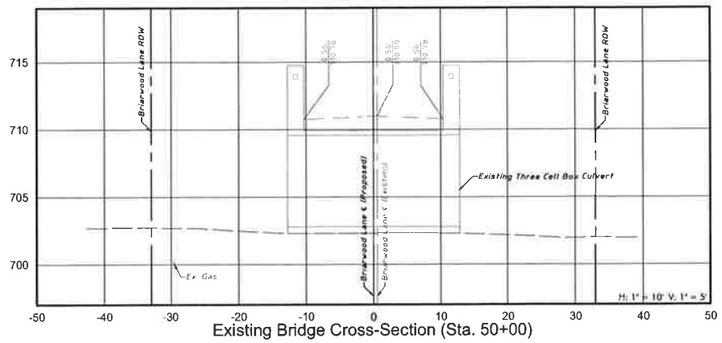
No.	Date	Revision

Project Manager: KAS
Engineer: JDT
Date: 10/31/2011
Project No. 08-041E
Sheet 17/21

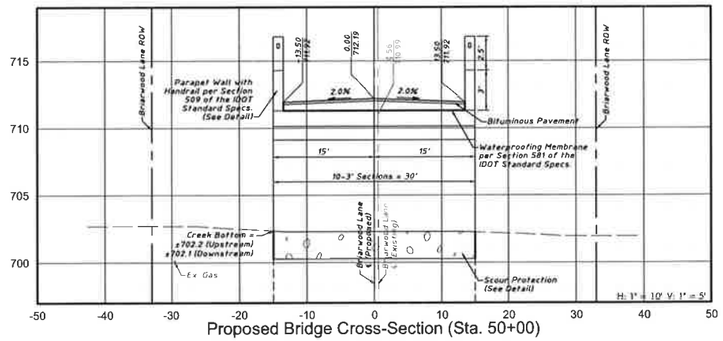


Wingwall Elevation Table

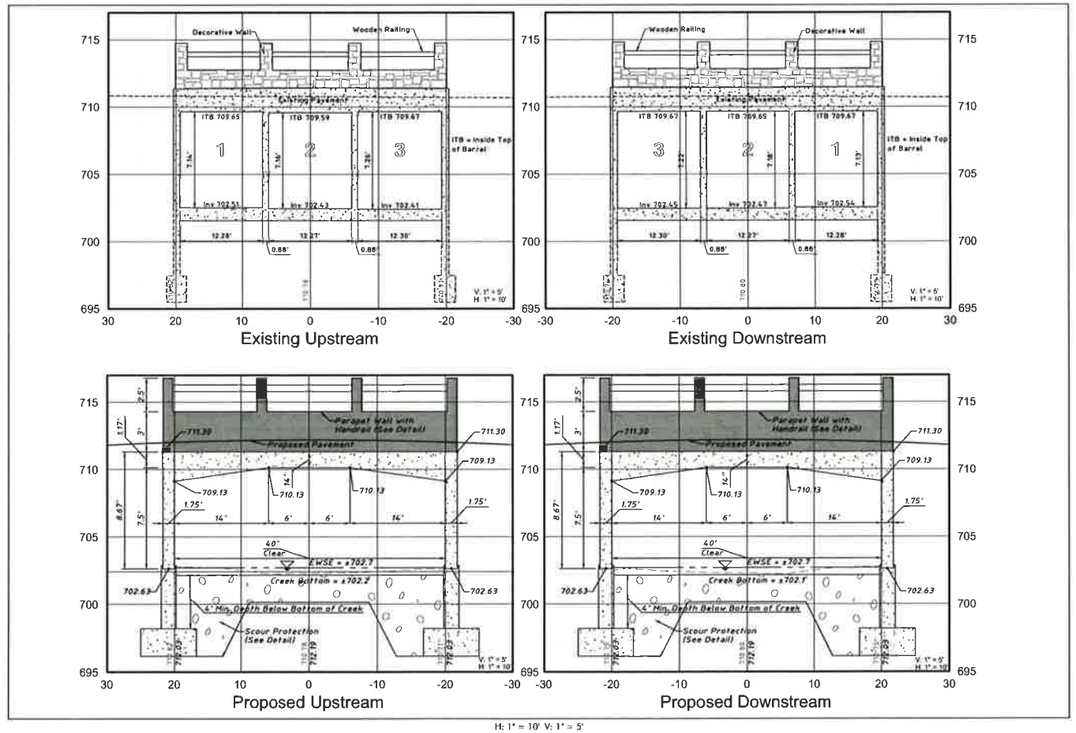
Point	Top/Wall	Bottom/Wall
1	711.70	703.30
2	708.50	708.00
3	708.50	708.50
4	711.70	711.70
5	711.70	711.70
6	708.00	708.00
7	708.00	707.50
8	711.70	703.50
9	711.70	705.50
10	709.20	708.70
11	709.20	709.20
12	711.70	711.70
13	711.70	711.70
14	707.30	707.30
15	707.30	706.80
16	711.70	703.00



Existing Bridge Cross-Section (Sta. 50+00)



Proposed Bridge Cross-Section (Sta. 50+00)



Existing Upstream | Existing Downstream

Proposed Upstream | Proposed Downstream

H: 1" = 10' V: 1" = 5'

WATERWAY INFORMATION TABLE

Drainage Area =16.7 Square Miles
Existing Overtopping Elevation: 709.4, 709.6 ft. @ Sta 48+30, 51+39
Proposed Overtopping Evaluation: 709.4, 709.6 ft. @ Sta 48+30, 51+39

Flood	Frequency	Discharge	Waterway Opening (sq. ft.)		Natural	Head (ft.)		Headwater Elev. (ft.)	
	Year	cfs	Existing	Proposed	H.W.E.	Existing	Proposed	Existing	Proposed
	10	557	205	241	708.16	0.08	0.07	708.24	708.23
Design	30	805	238	276	709.04	0.10	0.08	709.14	709.12
Base	100	1083	256	302	709.84	0.10	0.17	709.94	710.01
OVT(E)	~50	910	250	289	709.36	0.13	0.13	709.49	709.49
OVT(P)	~50	910	250	289	709.36	0.13	0.13	709.49	709.49

Notes:

1. Existing three cell box culvert (SN 016-4000) built in 1954 +/- to be completely removed and replaced with three sided precast structure. Crossing will be completely closed during construction.
2. Structure shall be Hy-Span three sided flat top precast reinforced culvert (or approved equal) with precast "L" type wingwalls, cast-in-place footings with pedestal, and parapet wall with pedestrian rail.
3. Geometry and other information shown are based on plans provided by Independent Concrete Pipe Company (ICPC) / Hy-Span. Dimensions may vary as per manufacturer's design. Refer to ICPC / Hy-Span drawings (By Others) for additional information.
4. Final structure design of culvert, footings, pedestals, wingwalls, headwalls, and parapet walls, pedestrian rail and other structural components shall be performed by culvert fabricator. Fabricator shall provide shop drawings and calculations for all structure elements. Design loading shall meet HS-20 loading requirements and all structure elements shall be in accordance with the IDOT Standard Specifications for Road and Bridge Construction and AASHTO Specifications. Refer to three sided precast concrete structure notes on Sheet 3 and ICPC / Hy-Span Systems Bridge Drawings for additional information.
5. Waterproofing membrane system shall be placed on bridge deck. Refer to waterproofing membrane system detail for additional information. Waterproofing membrane system shall be in accordance with and installed per Section 581 of the IDOT Standard Specifications for Road and Bridge Construction.
6. Demolition of existing structure (SN: 016-4000) pay item shall include all work necessary for complete removal of existing box culvert structure including legal offsite disposal. Complete removal of existing structure shall be in accordance with Section 501 of the IDOT Standard Specifications for Road and Bridge Construction. The contractor shall submit a demolition plan to the PTRD / Engineer for approval, detailing the proposed methods of demolition.
7. Three sided precast structure pay item shall include all work necessary to fabricate and install structure and all related structural components per plans and shall include all work necessary beyond demolition of existing structure necessary to completely construct the structure through and including deck waterproofing membrane system.
8. Rip-rap scour protection pay item shall include excavation, geotextile fabric, and Class A4 rip-rap. Refer to scour protection detail for more information.
9. Parapet wall hand rail shall be per Section 509 of the IDOT Standard Specifications for Road and Bridge Construction. Sufficiency of scour protection should be evaluated by fabricators structural engineer to ensure structure will be adequately protected from scour.
10. Exterior face of all exposed structure walls, excluding interior of culvert, shall have stone ashlar surface finish.
11. Deck drains shall be included and incorporated into design as necessary to provide proper deck drainage (cost incidental).
12. Decorative exterior lights with Photocell, similar to existing (4 total) shall be provided. See detail on Sheet 21 for additional information.
13. Footings shall be designed using an allowable soil bearing pressure of 3000 PSF. Soil conditions encountered at foundation elevations shall be tested to verify the presence of design soil strength prior to concrete placement.
14. Excavations for foundations will require dewatering due to subsurface water seepage and water in the Salt Creek. All foundation work must be completed in the dry. Soils exposed at the foundation elevations should not be permitted to become saturated.
15. The contractor shall prepare an in-stream work plan including all required cofferdams, work pads, erosion and sediment control measures, dewatering including sediment removal, silt curtain, etc., and submit to the Engineer and U.S. Army Corps of Engineers (USACE) for approval prior to start of any in-stream work. Guidelines on acceptable in-stream work techniques can be found on the USACE website (www.lrc.usace.army.mil). Refer to In-Stream or Stream-Side SESC notes on SWPPP for additional information. The contractor should expect to have to attend meetings to discuss work plan in order to secure a permit. All in-stream work items, including preparation of in-stream work plan, will not be paid for separately, but shall be considered included in the unit bid prices and no additional compensation will be allowed.

Road Classification
Name: Briarwood Lane
Class: Local (Urban)
Existing \ Design ADT = 650 (< 1000)
Posted \ Design Speed = 25 MPH
Two-Way Traffic

Loading HS-20
Allow for 50 *lbs.f.* for future wearing surface

Design Specifications
2002 AASHTO Standard Specifications

Design Stresses

Field Units
f'c = 3,500 PSI
fy = 60,000 psi (Reinforcement)

Precast Units
f'c = 5,000 PSI
fy = 60,000 PSI (Reinforcement)
fy = 65,000 PSI (Welded Wire Fabric)

Seismic Data
Seismic Performance Category (SPC) = A
Acceleration Coefficient (A) = 0.04g
Site Coefficient (S) = 1.0

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SALT CREEK CROSSING PLAN

BRIARWOOD LANE RE-ALIGNMENT AND SALT CREEK CROSSING REPLACEMENT PLANS

PALATINE TOWNSHIP, ILLINOIS

Project Manager: K A S
Engineer: J D T
Date: 10/31/2011
Project No. 08-041E
Sheet 18 / 21

Plot Date: Nov 02, 2011 - 11:16a m Plotted By: psh1
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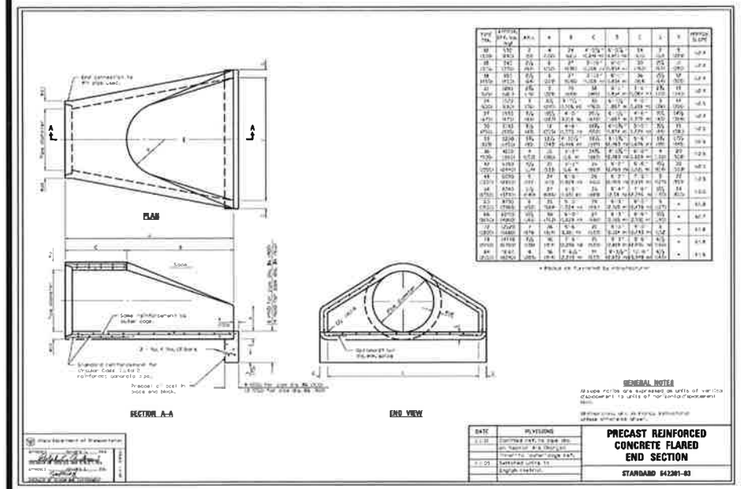
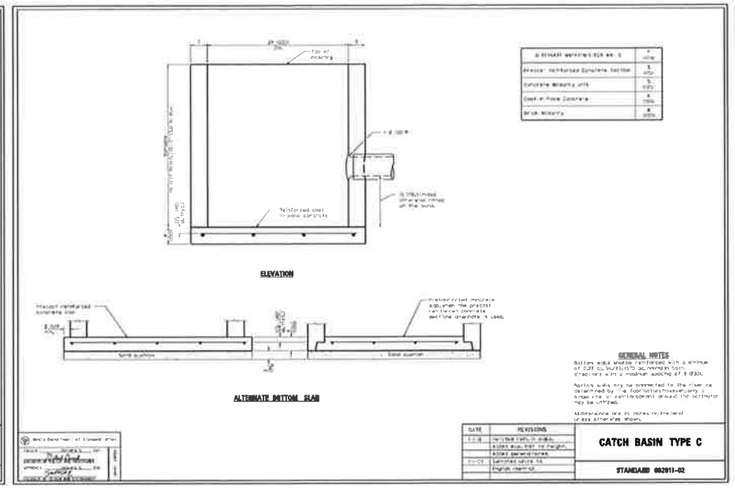
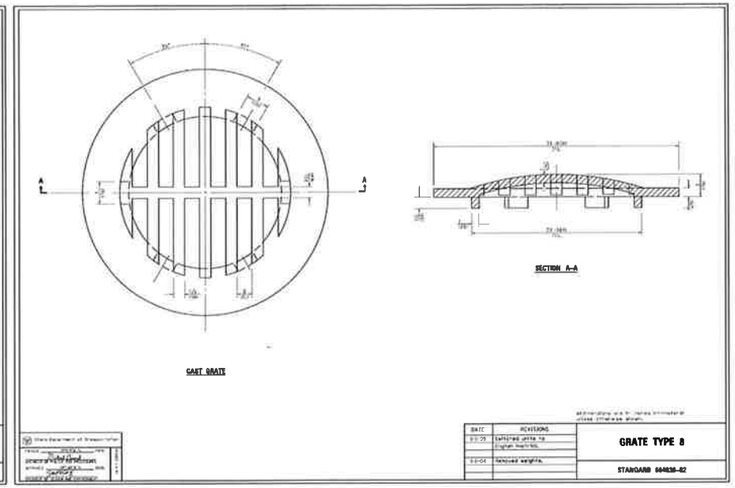
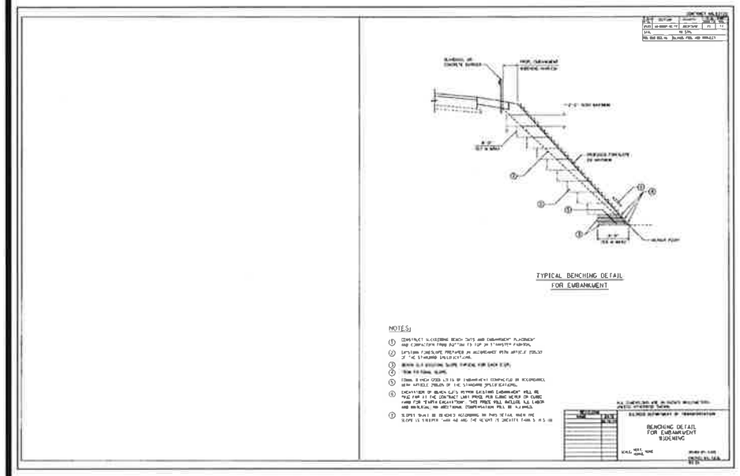
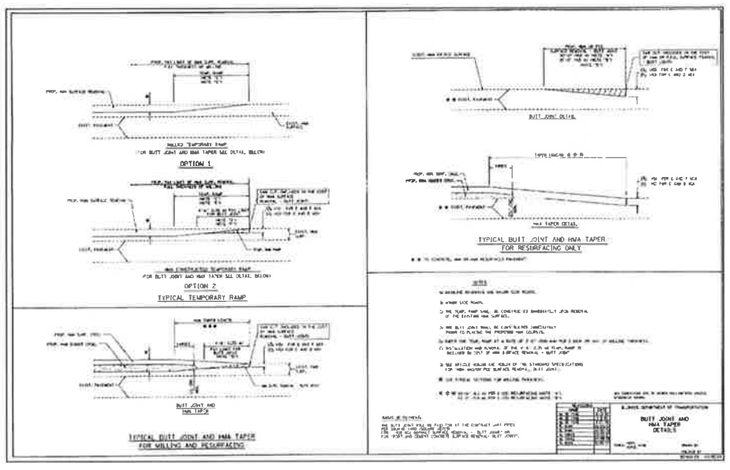
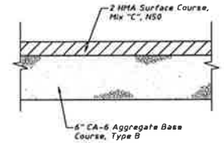




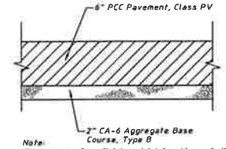






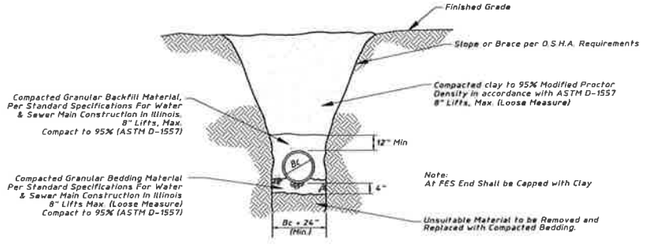


BITUMINOUS DRIVEWAY REPLACEMENT

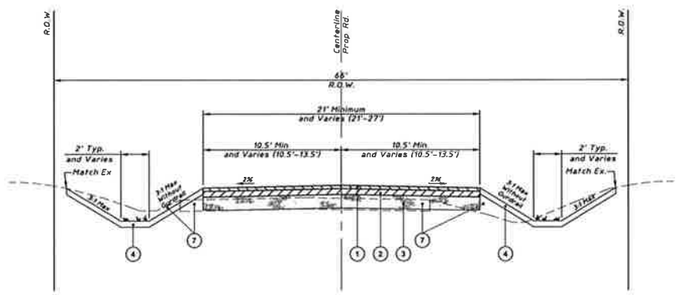


Note:
Concrete surface finish and joint pattern shall match existing surface finish joint pattern.

CONCRETE DRIVEWAY REPLACEMENT

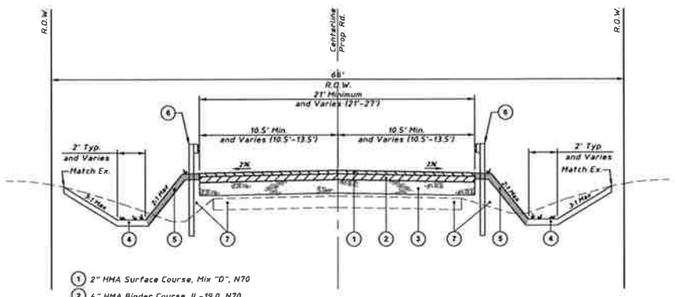


TRENCH SECTION - STORM SEWER



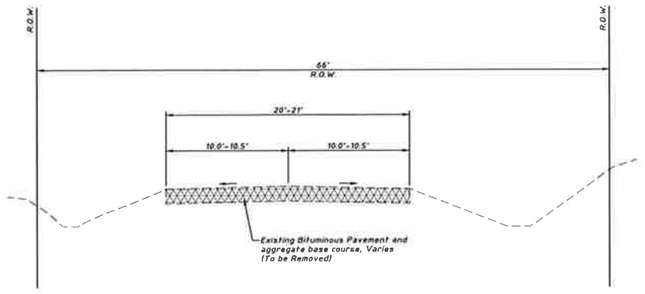
1. 2" HMA Surface Course, Mix "D", N70
2. 4" HMA Binder Course, IL-19.0, N70
3. 8" CA-6 Aggregate Base Course, Type B
4. 4" Topsoil, Seed (Class 2A or as specified) and Erosion Control Blanket (NAG DS75 or Approved Equal)
7. Remove existing pavement and unsuitable materials within area of proposed road and zone of influence of thereof, and properly place and compact embankment fill material as necessary as approved by geotechnical engineer to raise to needed subgrade elevation. Refer to Earthwork and Demolition Notes for additional information.

PROPOSED TYPICAL SECTION BRIARWOOD LANE - WITHOUT GUARDRAIL



1. 2" HMA Surface Course, Mix "D", N70
2. 4" HMA Binder Course, IL-19.0, N70
3. 8" CA-6 Aggregate Base Course, Type B
4. 4" Topsoil, Seed (Class 2A or as specified) and Erosion Control Blanket (NAG DS75 or Approved Equal)
5. 4" Topsoil, Seed (Class 2A or as specified) and Erosion Control Mat (NAG SC250 or Approved Equal)
6. Guardrail, Type A with Steel Posts. Posts shall be 6' for side slopes 3:1 & flatter and 9' for side slopes steeper than 3:1.
7. Remove existing pavement and unsuitable materials within area of proposed road and zone of influence of thereof, and properly place and compact embankment fill material as necessary as approved by geotechnical engineer to raise to needed subgrade elevation. Refer to Earthwork and Demolition Notes for additional information.

PROPOSED TYPICAL SECTION BRIARWOOD LANE - WITH GUARDRAIL



EXISTING TYPICAL SECTION BRIARWOOD LANE

No.	Revision	Date

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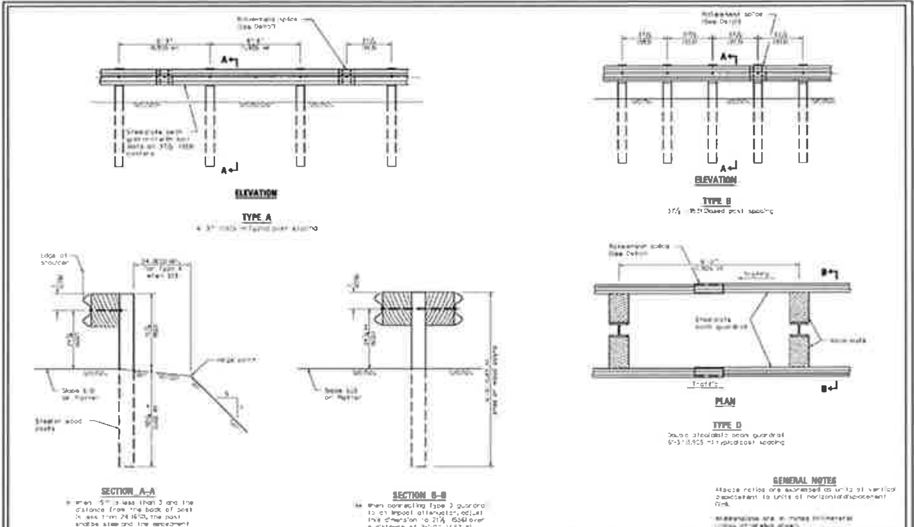
TYPICAL DETAILS

BRIARWOOD LANE RE-ALIGNMENT AND SALT CREEK CROSSING REPLACEMENT PLANS
PALATINE TOWNSHIP, ILLINOIS

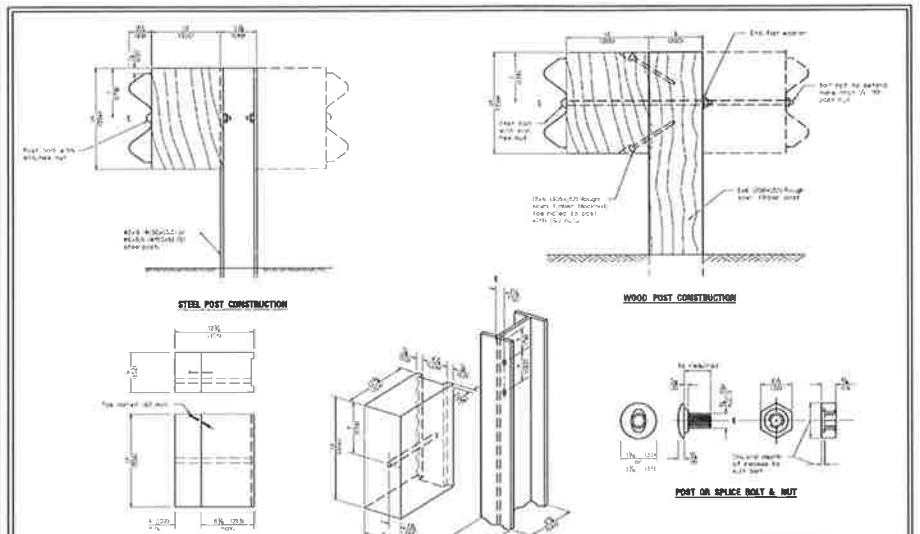
Project Manager:	K.A.S
Engineer:	J.D.T
Date:	10/31/2011
Project No.	08-041E
Sheet	19 / 21

Plot Date: Oct 31, 2011 - 11:54am Plotted By: ykim1
File Name: P:\2008\08041\Drawing\Final Engineering\08041E Title Notes Details.dwg



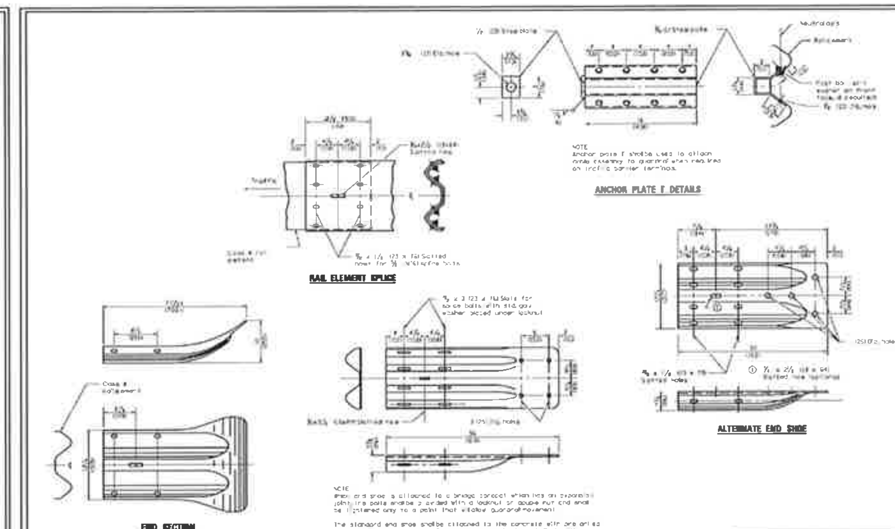
STEEL PLATE BEAM GUARDRAIL

STANDARD 630001-10



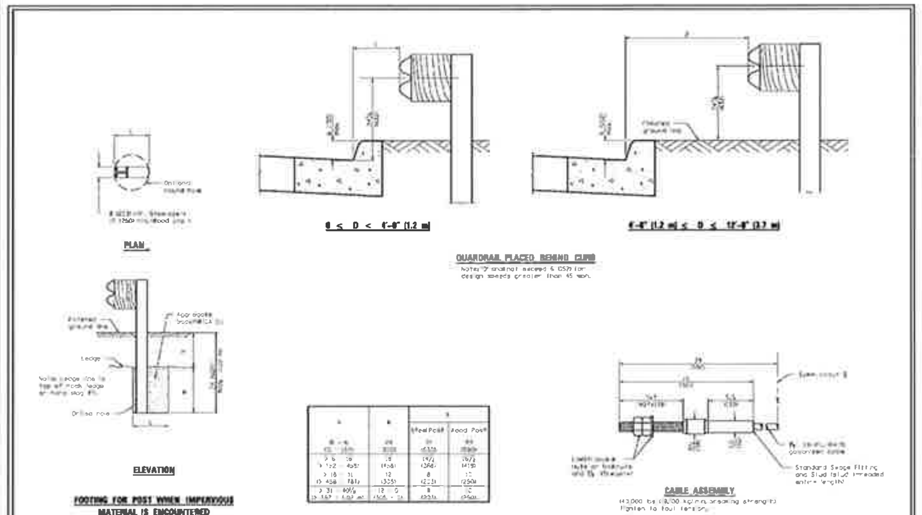
STEEL PLATE BEAM GUARDRAIL

STANDARD 630001-10



STEEL PLATE BEAM GUARDRAIL

STANDARD 630001-10



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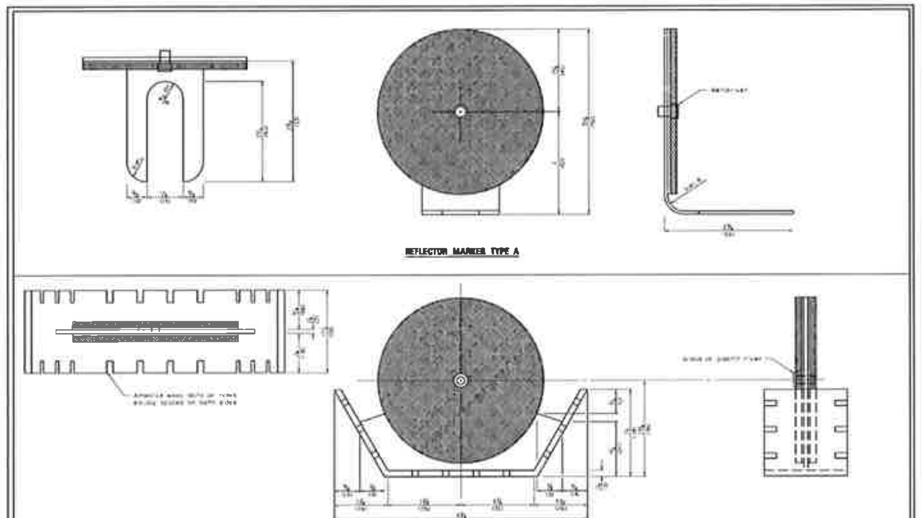
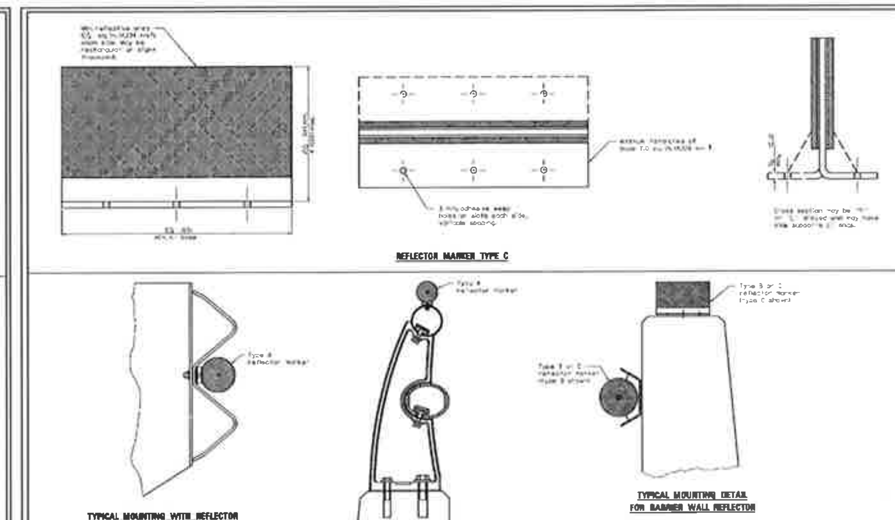
STANDARD 630001-10



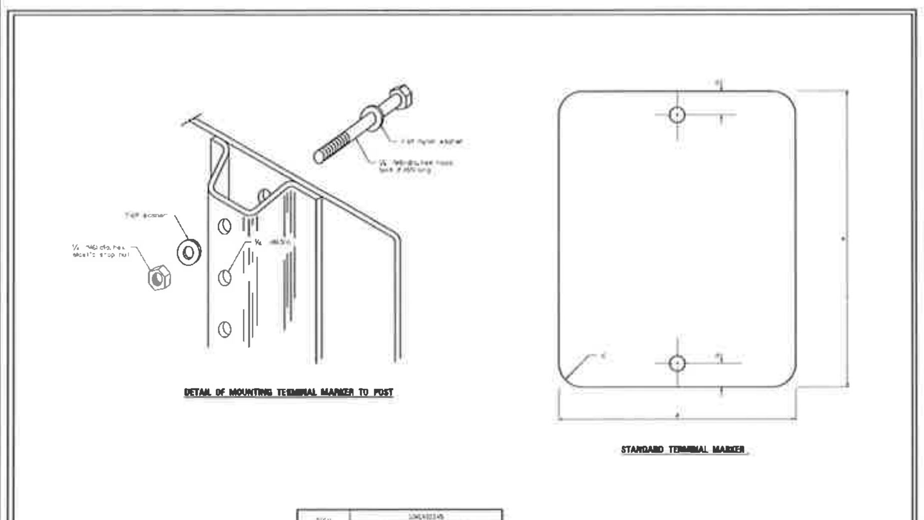
REFLECTOR MARKER AND MOUNTING DETAILS

STANDARD 635011-02



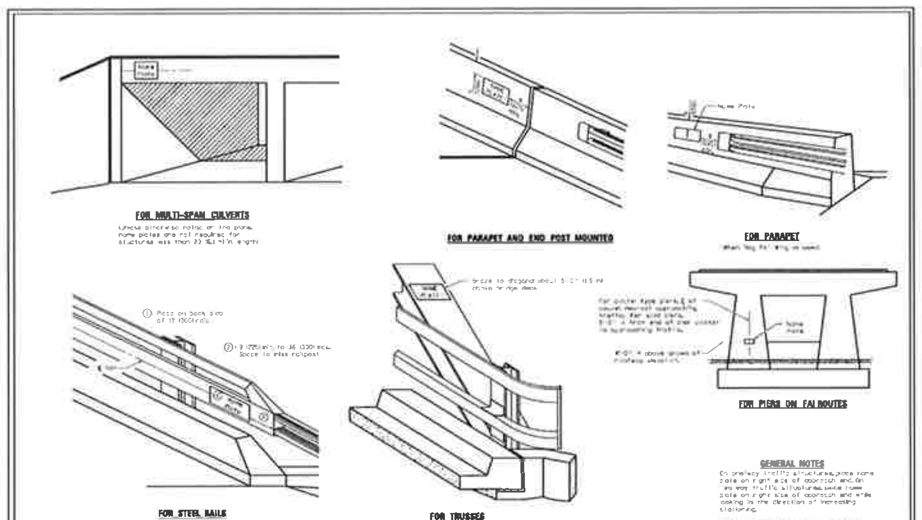
REFLECTOR MARKER AND MOUNTING DETAILS

STANDARD 635011-02



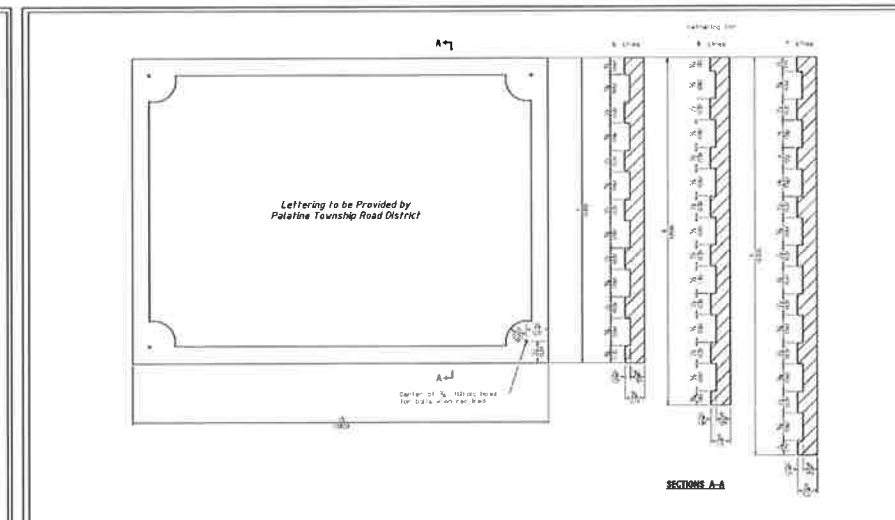
REFLECTOR MARKER AND MOUNTING DETAILS

STANDARD 635011-02



NAME PLATE FOR BRIDGES

STANDARD 515001-03



NAME PLATE FOR BRIDGES

STANDARD 515001-03

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TYPICAL DETAILS

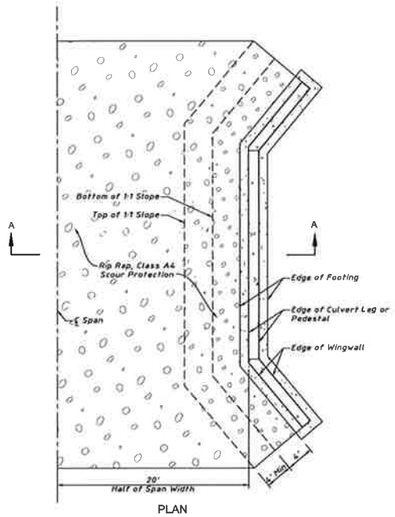
BRIARWOOD LANE RE-ALIGNMENT AND SALT CREEK CROSSING REPLACEMENT PLANS

PALATINE TOWNSHIP, ILLINOIS

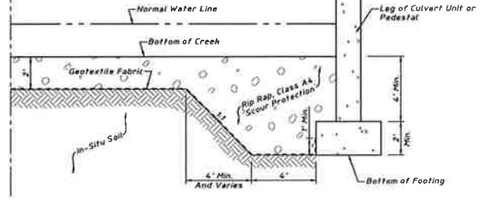
Project Manager:	KAS
Engineer:	JDT
Date:	10/31/2011
Project No.	08-041E
Sheet	20 / 21

No.	Date	Revision

Plot Date: Nov 02, 2011 11:18am Plotted By: josh
File Name: P:\2008\08041\Drawings\Final Engineering\08041E Title Notes Details.dwg

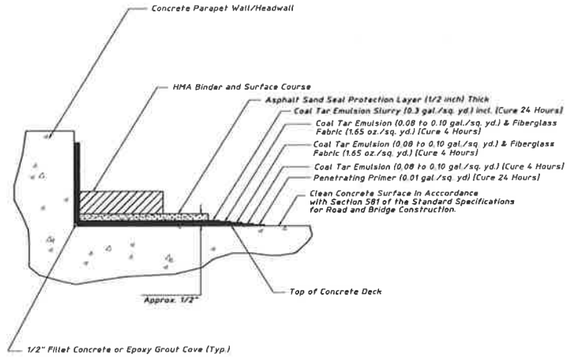


PLAN



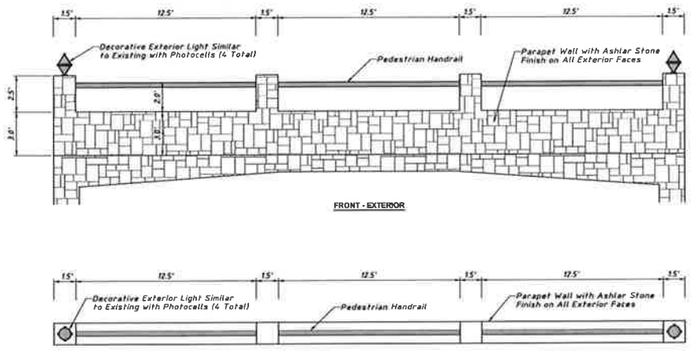
SECTION A-A

THREE SIDED PRECAST CULVERT SCOUR PROTECTION



Note:
Waterproofing Membrane System (Per Detail or IDOT Approved Equal) shall be in accordance with and placed in Accordance with Section 581 of the Standard Specifications for Road and Bridge Construction, Latest edition.

WATERPROOFING MEMBRANE SYSTEM



Notes:
1. All required parapet wall with pedestrian rail and lighting / electrical work shall be considered incidental to the "Three Sided Precast Structure" pay item.
2. Contractor to provide required conduit, wiring, photocell, etc and connect proposed lights to existing power service. All electrical work shall be in accordance with National Electric Code and IDOT Standard Specifications.
3. Parapet barrier wall and railing shall meet the applicable requirements of the AASHTO and IDOT Standard Specifications.
4. Final decorative exterior lights shall have photocells and adequately light the bridge (contractor to provide photometric plan). Light manufacturer, type, color, etc shall be approved by PTRD prior to ordering / installation

CONCRETE PARAPET WALL WITH PEDESTRIAN RAIL AND LIGHTING

No. | Revision | Date

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TYPICAL DETAILS

BRIARWOOD LANE RE-ALIGNMENT AND SALT CREEK CROSSING REPLACEMENT PLANS
PALATINE TOWNSHIP, ILLINOIS

Project Manager: K A S
Engineer: J D T
Date: 10/31/2011
Project No. 08-041E
Sheet 21/21

Plot Date: Nov 02, 2011 - 12:11pm Plotted By: gavin k
File Name: P:\2008\080411\Drawings\Final Engineering\080411E Title Notes Details.dwg

CLIENT:
Palatine Township Road District
530 N. Smith Street
Palatine, Illinois 60067
Tel: 847-358-6336
Fax: 847-358-4056

PREPARED BY:
Haeger Engineering LLC
Illinois Prof. Design Firm #184-003152
1300 N. Plum Grove Road
Schaumburg, IL 60173
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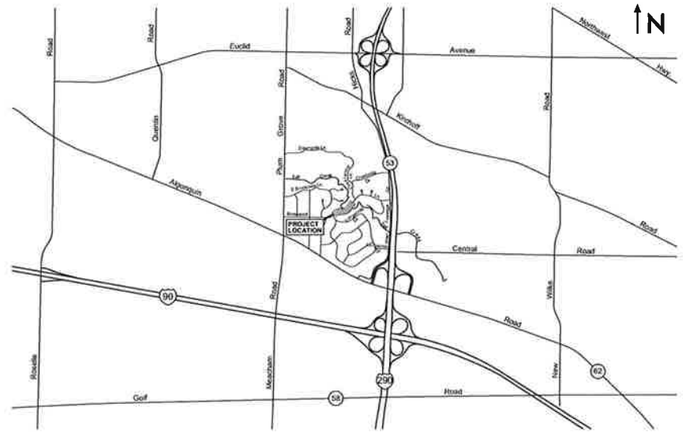
Fax: 847-394-6608

BRIARWOOD LANE RE-ALIGNMENT AND SALT CREEK CROSSING REPLACEMENT PLANS

STORM WATER POLLUTION PREVENTION (SWPP) PLAN

SECTION 35 TOWNSHIP 42 NORTH RANGE 10 EAST
COOK COUNTY
PALATINE TOWNSHIP, ILLINOIS



LOCATION MAP
Not To Scale

INDEX TO STORM WATER POLLUTION PREVENTION PLAN SHEETS

NO.	DESCRIPTION
EC-1	SWPP PLAN TITLE SHEET
EC-2	SWPP PLAN NOTES
EC-3	SWPP PLAN DETAILS
EC-4	SWPP PLAN DETAILS
EC-5	SWPP PLAN

BENCHMARKS:

SOURCE BENCHMARK

Description: A chiseled square cut into top of head wall.

Location: At the end of North Brookfield Lane approx. 100 feet north of centerline of cul-de-sac, behind 258 North Brookfield Road.

Elevation: 710.66 (NGVD 1929)

SITE BENCHMARK

HE CP #703

Description: Set Iron Rod.

Location: Northwest side of Briarwood Lane bridge. Approximately 60.6' North of the gabion wall and 5.75' West of Blue Spruce.

Elevation: 708.13 (NGVD 1929)

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

Note:
Call 811 at least 48 hours, excluding weekends and holidays, before you dig.

0' 5' 10' 15' — 1" = 5'
0' 10' 20' 30' — 1" = 10'
0' 50' 100' — 1" = 20'
0' 75' 150' — 1" = 30'
0' 125' 250' — 1" = 50'

SWPP PLAN NOTE:

THIS PLAN IS PROVIDED FOR SOIL EROSION & SEDIMENT CONTROL ONLY AND SHALL BE UPDATED AS NECESSARY THROUGHOUT THE CONSTRUCTION PROCESS. REFER TO THE BRIARWOOD LANE RE-ALIGNMENT AND SALT CREEK CROSSING REPLACEMENT PLANS FOR ADDITIONAL INFORMATION.

PALATINE TOWNSHIP ROAD DISTRICT
JOHN D. POWERS
HIGHWAY COMMISSIONER

KEVIN A. SHAVER
062-055416
LICENSED PROFESSIONAL ENGINEER
STATE OF ILLINOIS

EXPIRES 11-30-13

Note:
Applicable only to Civil & SWPPP Sheets.

No.	Date	Revision

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SWPP PLAN
TITLE SHEET

BRIARWOOD LANE RE-ALIGNMENT AND
SALT CREEK CROSSING REPLACEMENT PLANS
PALATINE TOWNSHIP, ILLINOIS

Project Manager: K A S
Engineer: J D T
Date: 10/31/2011
Project No. 08-041E
Sheet EC-1 / EC-5

Plot Date: Nov 02, 2011 - 10:11am Plotted By: pbh1
File Name: P:\2008\08041\Drawings\Final Engineering\08041E SWPP.dwg

Stormwater Pollution Prevention Plan

This plan has been prepared to comply with the provisions of the NPDES Permit Number ILRXXX, issued by the Illinois Environmental Protection Agency for storm water discharges from Construction Site Activities.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

_____ _____
Owner's Name *Signature*

_____ _____
Title *Date*

_____
Name of Firm/Company

I. Site Description:

A. The following is a description of the project location:

The project is located on Briarwood Lane between Longacres Drive & Crestwood Lane in Palatine, IL in Section 35, Township 42 North, Range 10 East all in Cook County Illinois (See Location Map on Title Sheet for additional information).

B. The following is a description of the construction activity which is the subject of this plan:

Removal & replacement/re-alignment of Briarwood Lane, including removal & replacement of the Salt Creek Crossing. Removal & replacement of existing driveway culverts, re-grading of roadway ditches. Other miscellaneous work related to the roadway reconstruction.

C. The following is a description of the intended sequence of major activities which will disturb soils for major portions of the construction site, such as grubbing, excavation and grading:

Exact phasing and sequencing to be determined by Contractor. Generally the road & bridge will be demolished and re-graded, then the Salt Creek Crossing and re-aligned roadway will be constructed, all with incidental construction items such as driveway culverts, driveway aprons, utility relocation, etc.

D. The total area of the construction site is estimated to be approximately 1.1 acres.

The total area of the site that is estimated will be disturbed by excavation, grading or other activities is approximately 1.1 acres.

E. The following is a weighted average of the runoff coefficient for this project after construction activities are completed:

The weighted runoff coefficient after completion of all construction activities is approximately 0.71.

F. The following is a description of the soil types found at the project site followed by information regarding their erosivity:

Per the NRCS soil survey, the site is made up primarily of Markham Ashkum Beecher complex and Sawmill silty clay loam.

G. The following is a description of potentially erosive areas associated with this project:

All disturbed areas as a result of demolition and grading activities.

H. The following is a description of soil disturbing activities, their locations, and their erosive factors (e.g. steepness of slopes, length of slopes, etc):

The soil disturbing activities consist of demolition and grading activities involved with the road re-alignment and creek crossing re-construction. Some of the roadway ditches and areas around the creek (i.e. along the proposed bridge headwalls) will have slopes as steep as 2:1. The lengths of these slopes will be minimal, and proper stabilization techniques will be used, including permanent stabilization near the bridge wingwalls.

I. See the erosion control plans and/or drainage plans for this contract for information regarding drainage patterns, approximate slopes anticipated before and after major grading activities, locations where vehicles enter or exit the site and controls to prevent offsite sediment tracking (to be added after contractor identifies locations), areas of soil disturbance, the location of major structural and non-structural controls identified in the plan, the location of areas where stabilization practices are expected to occur, surface waters (including wetlands) and locations where storm water is discharged to surface water including wetlands.

J. The following is a list of receiving water(s) and the ultimate receiving water(s), and areal extent of wetland acreage at the site. The location of the receiving waters can be found on the erosion and sediment control plans:

Water drains into Salt Creek via the roadway ditches & driveway culverts. No wetlands are present on the site.

K. The following pollutants of concern will be associated with this construction project:

Soil sediment and dust, bituminous paving byproducts, concrete, and concrete truck waste.

II. Controls:

This section of the plan addresses the controls that will be implemented for each of the major construction activities described in I.C. above and for all use areas, borrow sites, and waste sites. For each measure discussed, the contractor will be responsible for its implementation as indicated. The contractor shall provide to the resident engineer a plan for the implementation of the measures indicated. The contractor, and subcontractors, will notify the resident engineer of any proposed changes, maintenance, or modifications to keep construction activities compliant with the permit. Each such contractor has signed the required certification on forms which are attached to, and are a part of, this plan:

A. Erosion and Sediment Controls

1. **Stabilized Practices:** Provided below is a description of interim and permanent stabilization practices, including site specific scheduling of the implementation of the practices. Site plans will ensure that existing vegetation is preserved where attainable and disturbed portions of the site will be stabilized. Stabilization practices may include but are not limited to: temporary seeding, permanent seeding, mulching, geotextiles, sodding, vegetative buffer strips, protection of trees, preservation of mature vegetation, and other appropriate measures. Except as provided below in II(A)(1)(a) and II(A)(3), stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 7 days after the construction activity in that portion of the site has temporarily or permanently ceases on all disturbed portions of the site where construction will not occur for a period of 14 or more calendar days.

   a. Where the initiation of stabilization measures by the 7th day after construction activity temporarily or permanently ceases is precluded by snow cover, stabilization measures shall be initiated as soon as practicable thereafter.

   The following Stabilization Practices will be used for this project:

   Temporary seeding, permanent seeding, mulching, sodding, erosion control blanket/mat, etc.

   Describe how the Stabilization Practices listed above will be utilized:

   See Storm Water Pollution Prevention (SWPP) Plan. SWPP Plan shall be modified as necessary by the Contractor during construction to prevent sediment from leaving the site or entering the creek.

2. **Structural Practices:** Provided below is a description of structural practices that will be implemented, to the degree attainable, to divert flows from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Such practices may include but are not limited to: perimeter erosion barrier, earth dikes, drainage swales, sediment traps, ditch checks, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, and temporary or permanent sediment basins. The installation of these devices may be subject to Section 404 of the Clean Water Act.

   The following Structural Practices will be used for this project:

   Perimeter erosion control (silt) fence, Inlet protection, ditch checks, and temporary sediment basins/traps

   Describe how the Structural Practices listed above will be utilized:

   See Storm Water Pollution Prevention (SWPP) Plan. SWPP Plan shall be modified as necessary by the Contractor during construction to prevent sediment from leaving the site or entering the creek.

3. **Storm Water Management:** Provided below is a description of measures that will be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed. The installation of these devices may be subject to Section 404 of the Clean Water Act.

   a. Such practices may include but are not limited to: storm water detention structures (including wet ponds), storm water retention structures, flow attenuation by use of open vegetated swales and natural depressions, infiltration of runoff on site, and sequential systems (which combine several practices).

   The practices selected for implementation were determined on the basis of the technical guidance in Section 59-8 (Erosion and Sediment Control) in Chapter 59 (Landscape Design and Erosion Control) of the Illinois Department of Transportation Bureau of Design and Environment Manual. If practices other than those discussed in Section 59-8 are selected for implementation or if practices are applied to situations different from those covered in Section 59-8, the technical basis for such decisions will be explained below.

   b. Velocity dissipation devices will be placed at discharge locations and along the length of any outfall channel as necessary to provide a non-erosive velocity flow from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected (e.g. maintenance of hydrologic conditions such as the hydroperiod and hydrodynamics present prior to the initiation of construction activities).

   Description of Storm Water Management Controls:

   Catch basins with sumps, native plantings near ditch discharges in vicinity of creek as well as scour protection at crossing.

4. **Other Controls:**

   a. Vehicle Entrances and Exits - Stabilized construction entrances and exits must be constructed to prevent tracking of sediments onto roadways.

   The contractor will provide the resident engineer with a written plan identifying the location of stabilized entrances and exits and the procedures (s)he will use to construct and maintain them.

   b. Material Delivery, Storage, and Use - The following BMPs shall be implemented to help prevent discharges of construction materials during delivery, storage, and use:
      - All products delivered to the project site must be properly labeled.
      - Water tight shipping containers and/or semi trailers shall be used to store hand tools, small parts, and most construction materials that can be carried by hand, such as paint cans, solvents, and grease.
      - A storage/containment facility should be chosen for larger items such as drums and items shipped or stored on pallets. Such material is to be covered by a tin roof or large sheets of plastic to prevent precipitation from coming in contact with the products being stored.
      - Large items such as light stands, framing materials and lumber shall be stored in the open in a general storage area. Such material shall be elevated with wood blocks to minimize contact with storm water runoff.
      - Spill clean up materials, material safety data sheets, an inventory of materials, and emergency contact numbers shall be maintained and stored in one designated area and each Contractor is to inform his/her employees and the resident engineer of this location.

   c. Stockpile Management - BMPs shall be implemented to reduce or eliminate pollution of storm water from stockpiles of soil and paving materials such as but not limited to portland cement concrete rubble, asphalt concrete, asphalt concrete rubble, aggregate base, aggregate sub base, and pre-mixed aggregate. The following BMPs may be considered:
      - Perimeter Erosion Barrier
      - Temporary Seeding
      - Temporary Mulch
      - Plastic Covers
      - Soil Binders
      - Storm Drain Inlet Protection

   The contractor will provide the resident engineer with a written plan of the procedures (s)he will use on the project and how they will be maintained.

   d. Waste Disposal - No materials, including building materials, shall be discharged into Waters of the State, except as authorized by a Section 404 permit.

   e. The provisions of this plan shall ensure and demonstrate compliance with applicable State and/or local waste disposal, sanitary sewer or septic system regulations.

   f. The contractor shall provide a written and graphic plan to the resident engineer identifying where each of the above areas will be located and how they are to be managed.

5. **Approved State or Local Laws**

   The management practices, controls and provisions contained in this plan will be in accordance with IDOT specifications, which are at least as protective as the requirements contained in the Illinois Environmental Protection Agency's Illinois Urban Manual, 1995. Procedures and requirements specified in applicable sediment and erosion site plans or storm water management plans approved by local officials shall be described or incorporated by reference in the space provided below. Requirements specified in sediment and erosion site plans, site permits, storm water management site plans or site permits approved by local officials that are applicable to protecting surface water resources are, upon submittal of an NOI, to be authorized to discharge under permit ILR10 incorporated by reference and are enforceable under this permit even if they are not specifically included in the plan.

   Description of procedures and requirements specified in applicable sediment and erosion site plans or storm water management plans approved by local officials:

   See Storm Water Pollution Prevention (SWPP) Plan. SWPP Plan shall be modified as necessary by the Contractor during construction to prevent sediment from leaving the site or entering the creek. Contractor shall be responsible for submitting a side-stream / in-stream work plan as specified in the in-stream or side-stream soil erosion and sediment control notes.

III. Maintenance:

The following is a description of procedures that will be used to maintain, in good and effective operating conditions, the vegetation, erosion and sediment control measures and other protective measures identified in this plan. The resident engineer will provide maintenance guides to the contractor for the practices associated with this project.

All disturbed areas shall be graded to keep runoff and sediment onsite. Site shall be graded in such a matter to direct runoff to temporary sediment basins, storm structures with catch-all inlet protection and eventually into underground detention system with water quality controls. Contractor shall maintain, replace, clean, and add additional measures as needed during the progression of construction to prevent sediment, debris, etc from leaving the site.

IV. Inspections:

Qualified personnel shall inspect disturbed areas of the construction site which have not yet been finally stabilized, structural control measures, and locations where vehicles and equipment enter and exit the site. Such inspections shall be conducted at least once every seven (7) calendar days and within 24 hours of the end of a storm that is 0.5 inches or greater or equivalent snowfall.

A. Disturbed areas, use areas (storage of materials, stockpiles, machine maintenance, fueling, etc.), borrow sites, and waste sites shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the plan shall be observed to ensure that they are operating correctly. Discharge locations or points that are accessible, shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Locations where vehicles enter or exit the site shall be inspected for evidence of off site sediment tracking.

B. Based on the results of the inspection, the description of potential pollutant sources identified in section I above and pollution prevention measures identified in section II above shall be revised as appropriate as soon as practicable after such inspection. Any changes to this plan resulting from this required inspections shall be implemented within ½ hour to 1 week based on the urgency of the situation. The resident engineer will notify the contractor of the time required to implement such actions through the weekly inspection report.

C. A report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of this storm water pollution prevention plan, and actions taken in accordance with section IV(B) shall be made and retained as part of the plan for at least three (3) years after the date of the inspection. The report shall be signed in accordance with Part VI. G of the general permit.

D. If any violation of the provisions of this plan is identified during the conduct of the construction work covered by this plan, the resident engineer shall notify the appropriate IEPA Field Operations Section office by email at: epa.twinoconnor@illinois.gov, telephone or fax within 24 hours of the incident. The resident Engineer shall then complete and submit an "Incidence of Noncompliance" (ION) report for the identified violation within 5 days of the incident. The resident engineer shall use forms provided by the Illinois Environmental Protection Agency and shall include specific information on the cause of noncompliance, actions which were taken to prevent any further causes of noncompliance, and a statement detailing any environmental impact which may have resulted from the noncompliance. All reports of noncompliance shall be signed by a responsible authority in accordance with Part VI. G of the general permit.

The Incidence of Non Compliance shall be mailed to the following address:

Illinois Environmental Protection Agency
Division of Water Pollution Control
Attn: Compliance Assurance Section
1021 North Grand East
Post Office Box 19276
Springfield, Illinois 62794-9276

V. Non-Storm Water Discharges:

Except for flows from fire fighting activities, sources of non-storm water that is combined with storm water discharges associated with the industrial activity addressed in this plan must be described below. Appropriate pollution prevention measures, as described below, will be implemented for the non-storm water component(s) of the discharge.

A. Spill Prevention and Control - BMPs shall be implemented to contain and clean-up spills and prevent material discharges to the storm drain system. The contractor shall produce a written plan stating how his/her company will prevent, report, and clean up spills and provide a copy to all of his/her employees and the resident engineer. The contractor shall notify all of his/her employees on the proper protocol for reporting spills. The contractor shall notify the resident engineer of any spills immediately.

B. Concrete Residuals and Washout Wastes - The following BMPs shall be implemented to control residual concrete, concrete sediments, and rinse water:
   - Temporary Concrete Washout Facilities shall be constructed for rinsing out concrete trucks. Signs shall be installed directing concrete truck drivers where designated washout facilities are located.
   - The contractor shall have the location of temporary concrete washout facilities approved by the resident engineer.
   - All temporary concrete washout facilities are to be inspected by the contractor after each use and all spills must be reported to the resident engineer and cleaned up immediately.
   - Concrete waste solids/liquids shall be disposed of properly.

C. Litter Management - A proper number of dumpsters shall be provided on site to handle debris and litter associated with the project. The Contractor is responsible for ensuring his/her employees place all litter including marking paint cans, soda cans, food wrappers, wood lathe, marking ribbon, construction string, and all other construction related litter in the proper dumpsters.

D. Vehicle and Equipment Cleaning - Vehicles and equipment are to be cleaned in designated areas only, preferably off site.

E. Vehicle and Equipment Fueling - A variety of BMPs can be implemented during fueling of vehicles and equipment to prevent pollution. The contractor shall inform the resident engineer as to which BMPs will be used on the project. The contractor shall inform the resident engineer how (s)he will be informing his/her employees of these BMPs (i.e. signs, training, etc.). Below are a few examples of these BMPs:
   - Containment
   - Spill Prevention and Control
   - Use of Drip Pans and Absorbents
   - Automatic Shut-Off Nozzles
   - Topping Off Restrictions
   - Leak Inspection and Repair

F. Vehicle and Equipment Maintenance - On site maintenance must be performed in accordance with all environmental laws such as proper storage and no dumping of old engine oil or other fluids on site.

VI. Failure to Comply:

Failure to comply with any provisions of this Storm Water Pollution Prevention Plan will result in the implementation of an Erosion and Sediment Control Deficiency Deduction against the contractor and/or penalties under the NPDES permit which could be passed onto the contractor.

Owner/Contractor Certification Statement

This certification statement is part of the Storm Water Pollution Prevention Plan for the Briarwood Lane Re-Alignment and Salt Creek Crossing Replacement Project, in accordance with General NPDES Permit No. ILR- XXXX issued by the Illinois Environmental Protection Agency.

I certify under penalty of law that I understand the terms of the general National Pollutant Discharge Elimination System (NPDES) permit (ILR 10XXXX) that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification.

In addition, I have read and understand all of the information and requirements stated in the Storm Water Pollution Prevention Plan for the above mentioned project; I have provided all documentation required to be in compliance with the ILR10 and Storm Water Pollution Prevention Plan and will provide timely updates to these documents as necessary.

_____ _____
Name *Signature*

_____ _____
Title *Date*

_____ _____
Name of Firm/Company *Telephone*

_____ _____
Address *City/State/Zip*

The Owner, and all Contractor's and Sub-Contractor's performing work on this site are required to sign the above illustrated Certification Statement. The signed Certifications shall be maintained on the site with the SWPPP.

SOIL EROSION AND SEDIMENTATION CONTROL NOTES

1. All soil erosion and sedimentation control (SESC) measures shall be installed and properly maintained in accordance with the Illinois Environmental Protection Agency's (IEPA) "Illinois Urban Manual", latest edition and "Illinois Procedures and Standards for Urban Soil Erosion and Sedimentation Control", latest edition, and shall be followed as directed by the Village/City and Engineer. In addition, on sites that will ultimately result in the disturbance of one (1) acre or more the provisions outlined in the General National Pollutant Discharge Elimination System (NPDES) General Permit No. ILR10, latest edition, shall also be followed.
2. Prior to commencement of construction, on sites that will ultimately result in the disturbance of one (1) acre or more, the Contractor shall be responsible for obtaining a copy of the notice of coverage letter and the IEPA National Pollutant Discharge Elimination System (NPDES) General Permit ILR10 from the Owner. The Owner together along with the Contractor and/or other entities if so designated by the Owner, shall be responsible for ensuring that all the requirements of the General Permit and the Storm Water Pollution Prevention Plan (SWPPP) including but not limited to the installation, maintenance as well as the installation of any additional measures necessary that may be required, and inspections of the soil erosion and sediment control measures as well as completing all of the necessary applicable certifications, reports, logs, etc. Inspections shall be performed at least once every seven (7) calendar days and within 24 hours of the end of a storm event of 0.5 inches of rain (or equivalent snowfall) or greater. The SWPPP and all the required paperwork shall be kept on-site and be organized and ready for viewing.
3. All erosion control measures are to be installed prior to any demolition, earth moving activities or other disturbance.
4. Soil disturbance shall be conducted in such a manner as to minimize erosion. Areas of the development site that are not to be graded shall be protected from construction traffic or other disturbance until final seeding/stabilization is performed.
5. Soil Erosion Control measures shall include the provision of an erosion control fence as required along the area of disturbance, a stabilized construction entrance, and sediment traps or other inlet protection method at each inlet or catch basin.
6. Contractor to establish a temporary stabilized construction entrance as well as install all perimeter silt fence prior to the start of any clearing or grading activities.
7. The location of the perimeter erosion barrier may be adjusted as needed for temporary construction easements or access to the site. The contractor shall ensure that adjacent properties remain protected from sediment deposition.
8. Temporary gravel stabilized construction entrance shall be maintained, adjusted, and/or relocated as necessary to prevent mud and other debris from being tracked onto adjacent public roadways. Any mud or other debris that is tracked onto a public road shall be properly removed as soon as practical, but before the end of each working day.
9. Ditch checks shall be either triangular silt dikes or rolled excelsior.
10. After the start of mass grading and before all storm water conveyance improvements are in place and functional, all on-site storm water shall be temporarily diverted into the detention basin or a properly constructed temporary sedimentation basin or collection device, as per local requirements, so as to prevent surface waters from flowing onto adjacent property.
11. Disturbed areas shall be stabilized by seeding within seven (7) calendar days of the completion of disturbance. If construction activity on a portion of the site is to resume within fourteen (14) calendar days of the end of the last disturbance, then stabilization measures do not have to be initiated on that portion of the site by the 7th day after the completion of said disturbance. Contractor shall install temporary seeding and erosion control blanket as a necessary (cost incidental).
12. All disturbed areas will be restored with 4" topsoil, Class 2A seed mix and erosion control blanket (NAG DS75), except as follows.
    Creek Bank Side Slopes: 4" topsoil, class 4 seed mix and erosion control mat (NAG SC250)
    Side Slopes steeper than 3:1: 4" topsoil, class 2A seed mix and erosion control mat (NAG SC250)
13. The Contractor shall provide adequate planning and supervision during the project construction period for implementing construction methods, processes and cleanup procedures necessary to prevent water pollution and control erosion.
14. No sediment or debris shall be allowed to enter the existing storm sewer system, creek or flow off-site.
15. All temporary and permanent erosion and sedimentation control measures shall be maintained, repaired and/or replaced as necessary to ensure effective performance. If required, a designated erosion control inspector shall inspect all measures every seven (7) calendar days, or within twenty-four (24) hours of a 0.5-inch rain event or equivalent snowfall, and report where items are in non-compliance. Otherwise, the Contractor shall be responsible for the inspection as well as maintenance of all measures and shall be subject to the terms of Federal, State, and local requirements.
16. All temporary erosion and sedimentation control measures are to remain in place and be functioning until final stabilization. After final stabilization, the Contractor is to remove and properly dispose of all erosion and sedimentation measures according to Jurisdictional Agency requirements within thirty (30) days. All disturbed areas or trapped sediment that accumulates from said measures shall be permanently stabilized.
17. Topsoil stockpiles shall not be located in flood prone areas or buffers protecting wetlands, or waters of the United States or County. Stockpiles shall be protected from erosion by installing silt fence around the perimeter of the stockpile(s). Stockpiles shall be temporarily seeded within seven (7) calendar days of completion.
18. No work shall be performed in flowing water. Work in or near the critical areas should be isolated from concentrated flows or stream flow. Once work in this area begins, priority shall be given to the completion of the work and final stabilization of all disturbed areas.
19. If dewatering services are used, adjoining properties and discharge locations shall be protected from erosion. Discharges shall be routed through an effective sediment control measure (i.e., sediment trap, sediment basin, or other appropriate measure).
20. Contractor shall be responsible for submitting a side-stream / in-stream work plan as specified in the in-stream or side-stream soil erosion and sediment control notes. This plan and all related measures required shall be considered incidental to the contract.
21. After installation of drainage structures and before the ground is stabilized with permanent ground cover or pavement, contractor shall provide inlet protection around all drainage structures.
22. All storm sewers, drainage structures, catch basin sumps and/or retention/detention/sedimentation basins provided within this project are to be cleaned at the end of construction and prior to final acceptance. Cleaning may also be required during the course of construction if it is determined that the structures are not properly functioning and their performance is impaired.
23. Storm water conveyance swales, channels, streams or similar, if disturbed, are to be stabilized within 48 hours after the end of active disturbance.
24. Extreme caution shall be taken by the Contractor to prevent erosion and siltation during construction. The Contractor shall inspect catch basins and clean out if necessary. The contractor shall use silt/erosion control fence staked in place to prevent siltation of all drainage structures.
25. The Contractor shall water the site, as required during dry weather to control dust.
26. The contractor shall provide adequate receptacles for the deposition of all construction material debris generated during the development process. The contractor shall not cause or permit the dumping, depositing, dropping, throwing, discarding, or leaving of construction material debris upon or into any development site, channel, waters of the United States, or isolated waters of Cook County. The contractor shall maintain the development site free of construction material debris.
27. All temporary and permanent erosion and sediment control measures shall be maintained in an effective working condition (cost incidental).
    Erosion Control Maintenance and Replacement Notes:
    a. Silt fences are to be cleaned as required during the course of the construction of the project or if the Engineer determines that they are not properly functioning and their performance is impaired.
    b. Sediment traps and basins shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. Any required repairs shall be made immediately.
    c. Should the fabric decomposed or become ineffective prior to the end of the expected life and the barrier still be necessary, the fabric shall be replaced promptly.
    d. Sediment deposits should be removed after each storm event. They must be removed when deposits reach approximately half the height of the barrier.
    e. Mud or dust which is deposited on adjacent roadways shall be removed all the end of each day.
28. The sediment and erosion control measures indicated on the plans are the minimum requirements. Additional measures may be required, as directed by the Engineer or Jurisdictional Agency.
29. The Contractor shall assume responsibility for maintenance of all soil erosion and sedimentation control measures during and after construction. However, the Contractor shall not transfer these improvements for the purpose of maintenance until they have completed with the above and until they have received final inspection and approval from the Jurisdictional Agency or designated erosion control inspector and a Notice of Termination has been filed (NOT).
30. The work shall generally follow the following typical Construction Sequencing:
    a. Install soil erosion and sediment control measures as well as tree protection fencing.
    b. Demolish existing structure without impact or debris entering the existing waterway.
    c. Construct underwater structure excavation protection and excavate for footings, install footings, pedestal, and remaining structure.
    d. Complete tree removal, clearing, grubbing and demolition/relocation.
    e. Strip and stockpile topsoil and begin mass grading including storm sewer installation. Temporary seed and blanket and install any additional sediment and erosion control measures as required.
    f. Complete roadway re-alignment construction through binder and grading.
    g. Complete final surface, pavement markings, and permanently stabilize/restore the site.
    h. Remove temporary soil erosion and sediment control measures and restore after the site has been permanently stabilized with vegetation.
31. Contractor shall be responsible for constructing sediment traps/basins, stockpile/material storage areas, concrete washout areas and other measures necessary to prevent sediment sediment from leaving the site or entering the creek.

IN-STREAM OR SIDE-STREAM SOIL EROSION AND SEDIMENTATION CONTROL NOTES

The contractor shall prepare an in-stream work plan including all required cofferdams, work pads, erosion and sediment control measures, dewatering including sediment removal, silt curtain, etc., and submit to the Engineer and U.S. Army Corps of Engineers (USACE) for approval prior to start of any in-stream work. Guidelines on acceptable in-stream work techniques can be found on the USACE website (www.lrc.usace.army.mil). Refer to in-stream or stream-side SESC notes on SWPPP for additional information. The contractor should expect to have to attend meetings to discuss work plan in order to secure a permit. All in-stream work items, including preparation of in-stream work plan and all required measures, will not be paid for separately, but shall be considered included in the unit bid prices and no additional compensation will be allowed.

Work within a waterway must meet the following standards:

1. Work in the waterway shall be timed to take place during low or no flow conditions.
2. Water shall be isolated from the in-stream work area using Portadam cofferdam or other approved non-erodable cofferdam (steel sheets, Aqua Barriers, etc.). Earthen cofferdams are not permissible.
3. Work may not be performed in the water, except for the placement of the materials necessary for the construction of the cofferdam. The cofferdam must be constructed from the upland area and no equipment may enter the at any time once the cofferdam is in place and the area is dewatered, equipment may enter the cofferd area to perform work.
4. If bypass pumping is necessary, the pump shall be placed on a stable surface or floated to prevent sediment from being sucked into the hose. The bypass discharge shall be placed on non-erodable, energy dissipating surface prior to rejoining the stream flow and shall not cause erosion of the downstream areas, cleaning or filtering of bypass water is not necessary unless otherwise required.
5. During dewatering of the cofferd area, all water must be filtered to remove sediment. possible options for sediment removal include baffle systems, anionic polymers, dewatering bags, portable sediment containment device, or other approved methods. Water shall have sediment removed prior to being re-introduced to the downstream waterway. Discharge water is considered clean if it does not result in visually identifiable degradation of water quality.
6. The disturbed creek side slopes shall be restored with 4" of topsoil, reseeded with Class 4 seed mix and stabilized with an appropriate erosion control mat prior to accepting flows. The substrate shall be restored to pre-construction conditions and stable enough to accept flows.

MAINTENANCE SCHEDULE

1. Perimeter Erosion Barrier - at a minimum, the contractor shall inspect all perimeter erosion barrier weekly or after each one-half inch or greater rainfall event. Any required repairs shall be made by the contractor to keep the perimeter erosion barrier functional as designed.
2. Heavy Duty Erosion Blanket - at a minimum, the contractor shall inspect all erosion blanket weekly or after each one-half inch or greater rainfall event. Any required repairs shall be made by the contractor to keep the erosion blanket functional as designed.
3. Inlet and Pipe Protection - at a minimum, the contractor shall inspect all inlet and pipe protection weekly or after each one-half inch or greater rainfall event. Any required repairs shall be made by the contractor to keep the inlet and pipe protection functional ass designed.
4. Temporary Ditch Checks - at a minimum, the contractor shall inspect all temporary ditch checks weekly or after each one-half inch or greater rainfall event. Any required repairs shall be made by the contractor to keep the temporary ditch checks functional as designed.
5. Inlet Filters - at a minimum, the contractor shall inspect all inlet filters weekly or after each one-half inch or greater rainfall event. Any required repairs shall be made by the contractor to keep the temporary ditch checks functional as designed.
6. Sediment Traps and Dewatering Bags - the contractor shall inspect all sediment traps and dewatering bags on a regular basis to ensure they are functioning as designed. Sediment traps shall be re-excavated when a third to half full. Dewatering bags shall be replaced when a third to half full.

No.	Date	Revision

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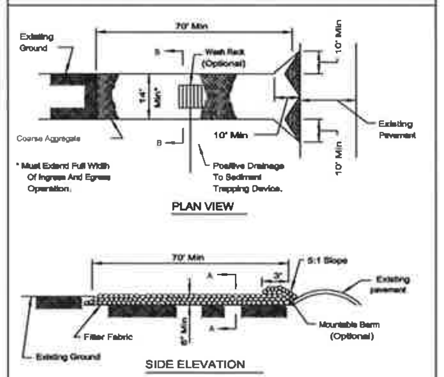
SWPPP NOTES

BRIARWOOD LANE RE-ALIGNMENT AND SALT CREEK CROSSING REPLACEMENT PLANS
PALATINE TOWNSHIP, ILLINOIS

Project Manager: K A S
Engineer: J O T
Date: 10/31/2011
Project No. 08-041E
Sheet EC-2 / EC-5

Plot Date: Oct 31, 2011 - 11:57am Plotted By: jott
File Name: P:\2008\08041\Drawing\Final Engineering\08041E SWPPP.dwg

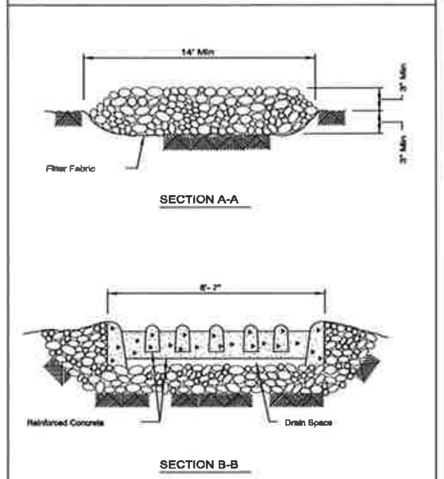
STABILIZED CONSTRUCTION ENTRANCE PLAN



NOTES:
1. Filter fabric shall meet the requirements of material specification 592 GEOTEXTILE, Table I or 2, Class , or and shall be placed over the cleared area prior to the placing of rock.
2. Rock or reclaimed concrete shall meet one of the following IDOT coarse aggregate gradation, CA-1, CA-2, CA-3 or CA-4 and be placed according to construction specification 25 ROCKFILL using placement Method 1 and Class compaction.
3. Any drainage facilities required because of washing shall be constructed according to manufacturers specifications.
4. If wash racks are used they shall be installed according to the manufacturers specifications.

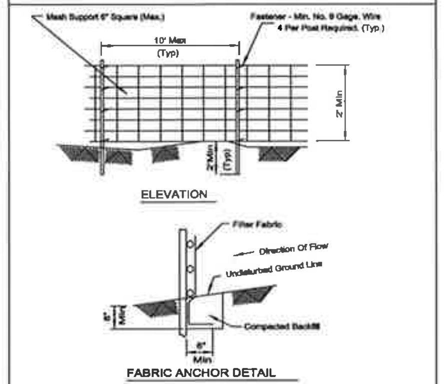
REFERENCE	U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE ILLINOIS	STANDARD DWG. NO.
Project ____ Designed ____ Date ____ Checked ____ Date ____ Approved ____ Date ____		IL-630 SHEET 1 OF 2 DATE 6-18-84

STABILIZED CONSTRUCTION ENTRANCE PLAN



REFERENCE	U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE ILLINOIS	STANDARD DWG. NO.
Project ____ Designed ____ Date ____ Checked ____ Date ____ Approved ____ Date ____		IL-630 SHEET 2 OF 2 DATE 6-18-84

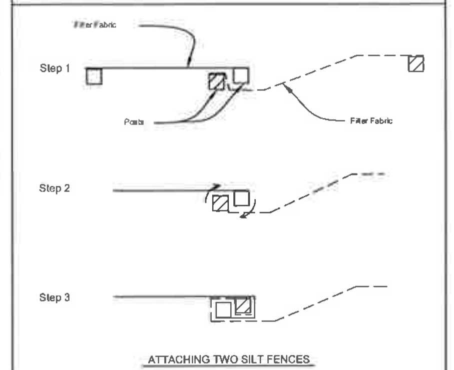
SILT FENCE PLAN



NOTES:
1. Top and bottom wires of mesh support shall be min. gage no 9.
2. Intermediate wires of mesh supports shall be min. gage no. 11.
3. Temporary sediment fence shall be installed prior to any grading work in the area to be protected. They shall be maintained throughout the construction period and removed in conjunction with the final grading.
4. Filter fabric shall meet the requirements of material specification 592 Geotextile Table 1 or 2, Class with equivalent opening size of at least 30 for nonwoven and 50 for woven.
5. Fence post shall be either standard steel post or wood post with a minimum sectional area 3.0 sq in.
6. The mesh support may be omitted if a maximum of 6' is used for post post spacing.

REFERENCE	U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE ILLINOIS	STANDARD DWG. NO.
Project ____ Designed ____ Date ____ Checked ____ Date ____ Approved ____ Date ____		IL-620 SHEET 1 OF 2 DATE 3-8-85

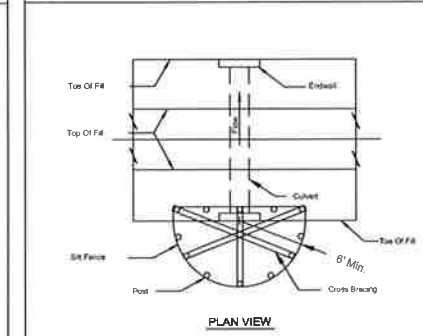
SILT FENCE PLAN



NOTES
1. Place the end post of the second fence inside the end post of the first fence.
2. Rotate both posts at least 180 degrees in a clockwise direction to create a tight seal with the fabric material. Drive both posts a minimum of 2 feet into the ground and bury the flap.
3.

REFERENCE	USDA NRCS NATURAL RESOURCES CONSERVATION SERVICE ILLINOIS	STANDARD DWG. NO.
Project ____ Designed ____ Date ____ Checked ____ Date ____ Approved ____ Date ____		IL-620 SHEET 2 OF 2

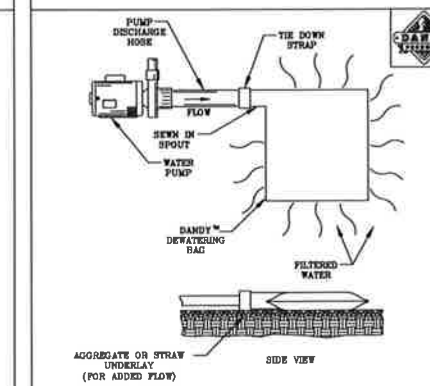
CULVERT INLET PROTECTION



NOTES
1. The silt fence shall meet the requirements as shown on standard drawing IL-620 SILT FENCE except the maximum post spacing shall be 3 feet and the tops of posts shall be cross braced.
2. Sediment shall be removed when the sediment has accumulated to one half the height of the silt fence.
3. The maximum drainage area to the culvert being protected is 1 acre.

REFERENCE	USDA NRCS NATURAL RESOURCES CONSERVATION SERVICE ILLINOIS	STANDARD DWG. NO.
Project ____ Designed ____ Date ____ Checked ____ Date ____ Approved ____ Date ____		IL-508SF SHEET 1 OF 1

DANDY DEWATERING BAG™



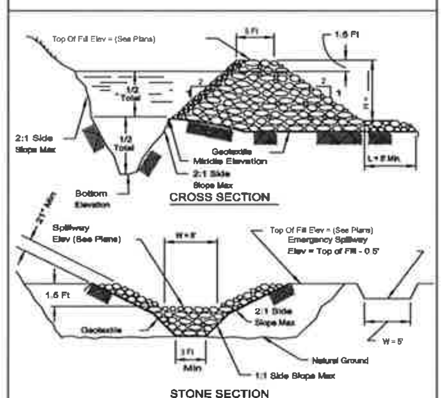
DANDY DEWATERING BAG™ SPECIFICATIONS

NOTE: THE DANDY DEWATERING BAG™ WILL BE MANUFACTURED IN THE U.S.A. FROM A NONWOVEN POLYPROPYLENE FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS:

DANDY DEWATERING BAG™

Mechanical Properties	Test Method	Units	MARV
Grab Tensile Strength	ASTM D 4632	kN (lbs)	0.9 (205) x 0.9 (205)
Grab Tensile Elongation	ASTM D 4632	%	50 x 50
Puncture Strength	ASTM D 4833	kN (lbs)	0.58 (130)
Mullen Burst Strength	ASTM D 3786	kPa (psi)	2618 (380)
Trapezoid Tear Strength	ASTM D 4533	kN (lbs)	0.36 (80) x 0.36 (80)
UV Resistance	ASTM D 4355	%	70
Apparent Opening Size	ASTM D 4751	mm (US Std Sieve)	0.180 (80)
Flow Rate	ASTM D 4491	l/min/m² (gal/min/ft²)	3866 (95)
Permittivity	ASTM D 4491	sec⁻¹	1.2

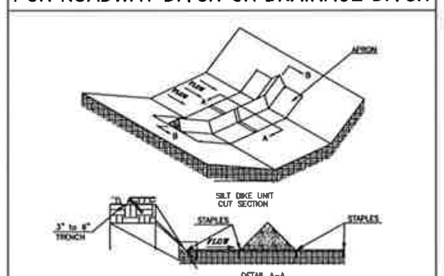
TEMPORARY SEDIMENT TRAP



NOTES:
1. If the sediment pool is formed or enlarged the side slope will be 2:1 or flatter.
2. The fill shall be constructed using IDOT RR-4 stone size. A 1 layer of IDOT CA-2 should be placed on the inside face to reduce the flow rate.
3. The rock will be placed according to construction specification 25 ROCKFILL. Placement will be by Method 1 and compaction will be class III
4. The geotextile shall meet the requirements in material specification 592 GEOTEXTILE table 1 or 2, class , or I II IV

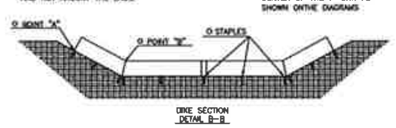
REFERENCE	NRCS	STANDARD DWG. NO.
Project ____ Designed ____ Date ____ Checked ____ Date ____ Approved ____ Date ____		IL-660 SHEET 1 OF 1 DATE 11-30-81

TRIANGULAR SILT DIKE INSTALLATION FOR ROADWAY DITCH OR DRAINAGE DITCH



O POINT "A" MUST BE HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.

O STAPLES SHALL BE PLACED WHERE THE UNITS OVERLAP AND IN THE CENTER OF THE 7' UNIT AS SHOWN ON THE DIAGRAMS

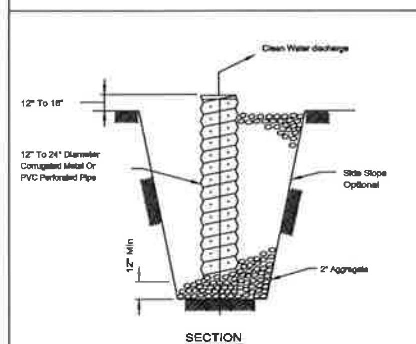


DESCRIPTION: This work shall consist of furnishing, installing, maintaining, and, when required, removal of the TEMPORARY SILT DIKE. The dikes shall be used as a continuous line barrier at the toe of slope or [illegible] line to contain sediment or as a ditch barrier placed perpendicular to the flow of water in a defined drainage ditch to minimize erosion and contain sediment. These dikes shall be installed and located as soon as construction will allow or as directed by the Engineer.

MATERIALS: TEMPORARY SILT DIKES shall be triangular-shaped, having a height of at least eight to ten inches (8"-10") in the center with equal sides and a sixteen- to twenty-inch (16"-20") base. The triangular-shaped inner material shall be urethane foam. The outer cover shall be a woven geotextile fabric placed around the inner material and allowed to extend beyond both sides of the triangle two to three (2'-3') feet. Standard length of each dike will be seven feet (7') unless otherwise indicated on the plans. The Dikes shall be attached to the ground with Wire Staples. The Staples shall be No. 11 gauge wire and be at least six to eight (6"-8") inches long. Staples shall be placed as indicated on the installation detail.

The Contractor shall inspect all dikes after each rainfall event of at least 0.5 inches or greater. Any deficiencies or damage shall be repaired by the Contractor. Accumulated silt or debris shall be removed and relocated as directed by the Engineer. If the Dikes are damaged or inadvertently moved during the silt removal process, the contractor shall immediately replace Dikes after damage occurs.

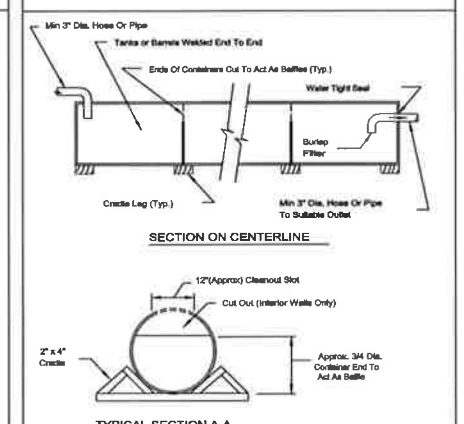
SUMP PIT PLAN



NOTES:
1. Pit dimensions are optional.
2. The standpipe will be constructed by perforating a 12"-24" diameter corrugated metal or PVC pipe.
3. A base of 2" aggregate will be placed in the pit to a minimum depth of 12". After installing the standpipe, the pit surrounding the standpipe will then be backfilled with 2" aggregate.
4. The standpipe will extend 12" to 18" above the lip of the pit.
5. If discharge will be pumped directly to a storm drainage system, the standpipe will be wrapped with filter fabric before installation.
6. If desired, 1/4"-1/2" hardware cloth may be placed around the standpipe prior to attaching the filter fabric. This will increase the rate of water seepage into the pipe.

REFERENCE	NRCS	STANDARD DWG. NO.
Project ____ Designed ____ Date ____ Checked ____ Date ____ Approved ____ Date ____		IL-650 SHEET 1 OF 1 DATE 6-11-94

PORTABLE SEDIMENT TANK PLAN



NOTES:
1. Clean out the sediment tank when one-third filled with sediment.
2. Steel drums are used as an example due to their ready availability. Any tanks may be used, providing that the volume requirements are met.
3. All sediment collected in the tank shall be disposed of in a sediment trapping device or as approved by the engineer/inspector.

Volume required in tank: cubic feet

REFERENCE	NRCS	STANDARD DWG. NO.
Project ____ Designed ____ Date ____ Checked ____ Date ____ Approved ____ Date ____		IL-595 SHEET 1 OF 1 DATE 3-2-88

TEMPORARY SEEDING NOTES (ILLINOIS URBAN MANUAL CODE 965)

This practice applies to all cleared, unvegetated, or sparsely vegetated soil surfaces where vegetative cover is needed for less than 1 year. Applications of this practice include diversions, dams, temporary sediment basins, temporary road banks, topsoil/clay stockpiles and any other exposed areas of a construction site.

Plant selection – Select plants appropriate to the season and site conditions from Table 1.

Site preparation – Prior to seeding, install necessary erosion control and sediment control practices if possible. Remove large rocks or other debris that may interfere with seedbed preparation or seeding operations.

Seedbed preparation:
1. Liming: Where the pH of the soil is below 5.5, apply one and one half to two tons per acre of finely ground agricultural limestone. If the seeding period is less than 30 days liming will not be required.
2. Fertilizer: Apply 500 pounds per acre of 10-10-10 fertilizer or equivalent. Incorporate lime and fertilizer into the top 2 – 4 inches of soil. If the seeding period is less than 30 days fertilizer will not be required.
3. Prepare a seedbed of loose soil to a depth of 3 to 4 inches. If recent tillage or grading operations have resulted in a loose surface, additional tillage or roughening may not be required except to break up large clods. If rainfall caused the surface to become sealed or crusted, loosen it just prior to seeding by disking, raking, harrowing, or other suitable methods. Grove or furrow slopes steeper than 3:1 on the contour before seeding.

Seeding – Seed shall be evenly applied with a cyclone seeder, drill, cultipacker seeder or hydroseeder. Small grains shallbe planted no more than one inch deep. Grasses shall be planted no more than one half inch deep.

Cover broadcast seedings by cullipacking, dragging a harrow, or raking.

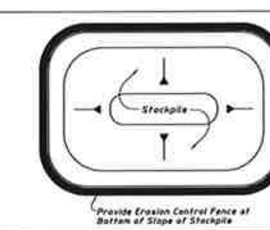
Temporary seeding provides protection for no more than 1 year, during which time permanent stabilization should be initiated. Permanent seeding shall conform the to Permanent Seeding (Code 880) of the Illinois Urban Manual Practice Standards.

Reseed areas where seedling emergence is poor, or where erosion occurs, as soon as possible. Protect from vehicular and foot traffic. Control weeds by mowing.

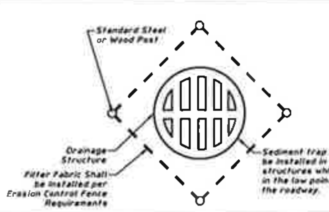
TABLE 1
TEMPORARY SEEDING SPECIES, RATES AND DATES

Species	Lbs./Acre	Lbs./1000 sq. ft.	Seeding Dates
Oats	90	2	Early spring – July 1
Cereal Rye	90	2	Early spring – Sept. 30
Wheat	90	2	Early spring – Sept. 30
Perennial Ryegrass	25	0.6	Early spring – Sept. 30

STOCKPILE PROTECTION DETAIL



INLET PROTECTION DETAIL

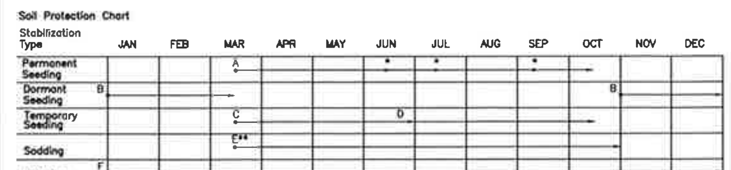


CONSTRUCTION SEQUENCE

CONSTRUCTION SEQUENCE AND RESPONSIBLE CONTRACTOR	GRADING CONTRACTOR	UNDERGROUND CONTRACTOR	PAVING CONTRACTOR	LANDSCAPE CONTRACTOR
1. INSTALL SEDIMENT CONTROL MEASURES -DITCH CHECKS -EROSION CONTROL FENCE -SEDIMENT BASIN -STABILIZED CONSTRUCTION ENTRANCE -TEMPORARY SWALES -SPECIFIED STORM SEWER LINES	X	X		
2. GRADE SITE/STOCKPILE TOPSOIL	X			
3. INSTALL STORMWATER MANAGEMENT MEASURES -STORM SEWER -SEDIMENT TRAP (INLET PROTECTION) -DITCH/SWALES	X	X		
4. TEMPORARY VEGETATIVE STABILIZATION -CONTROL MEASURES -TEMPORARY SEEDING -MULCHING				X
5. INSTALL ROAD SUBGRADE -AGGREGATE COVER			X	
6. SITE CONSTRUCTION WORK -CURB AND GUTTER -PAVING (WALKS & BIKEPATHS)			X	
7. VEGETATIVE COVER ON ALL AREAS TO BE EXPOSED LONGER THAN 60 DAYS -TEMPORARY SEEDING				X
8. SURFACE ROADS -PAVING			X	
9. PERMANENT VEGETATIVE STABILIZATION OF ALL EXPOSED AREAS -PERMANENT SEEDING -SODDING				X
10. INSTALL PERMANENT LANDSCAPING				X
11. PERFORM CONTINUING MAINTENANCE	X	X	X	X

SOIL PROTECTION CHART

Soil Protection Chart



A KENTUCKY BLUEGRASS 90 LBS/AC MIXED WITH PERENNIAL RYE GRASS 30 LBS/AC

B KENTUCKY BLUEGRASS 135 LBS/AC MIXED WITH PERENNIAL RYE GRASS 45 LBS/AC + 2 TONS STRAW MULCH PER AC

C SPRING OATS 100 LBS/AC

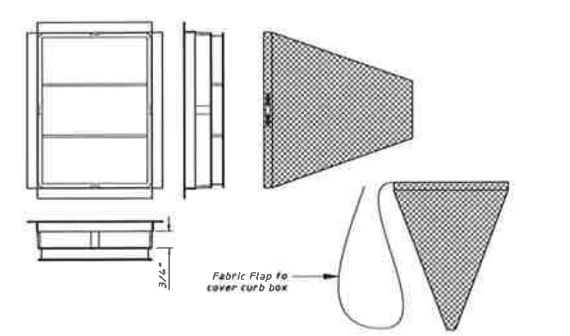
D WHEAT OR CEREAL RYE 150 LBS/AC

E SOD

F STRAW MULCH 2 TONS/AC

* IRRIGATION NEEDED DURING JUNE, JULY AND SEPTEMBER
** IRRIGATION NEEDED FOR 2–3 WEEKS AFTER SODDING

CURB SILT BASKET CATCH-ALL

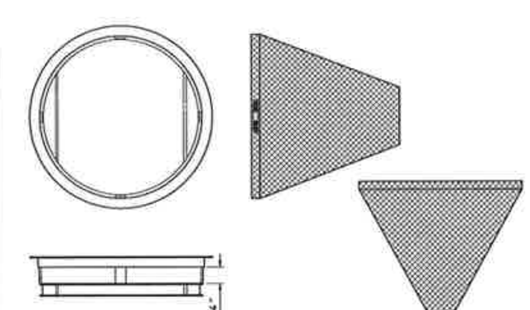


GENERAL NOTES:

FRAME: Top flange fabricated from 1/4"x1/4"x1/8" angle. Base rim fabricated from 1/2"x1/2"x1/8" channel. Handles and suspension brackets fabricated from 1/4"x1/4" flat stock. All domestic steel conforming to ASTM-A36.

SEDIMENT BAG: Bag fabricated from 4 oz./sq.yd. non-woven polypropylene geotextile reinforced with polyester mesh. Bag secured to base rim with a stainless steel strap and lock. All storm structures must have either a curb silt basket cath-all or an inlet silt basket cath-all inserted prior to construction.

INLET SILT BASKET CATCH-ALL



GENERAL NOTES:

FRAME: Top flange fabricated from 1/4"x1/4"x1/8" angle. Base rim fabricated from 1/2"x1/2"x1/8" channel. Handles and suspension brackets fabricated from 1/4"x1/4" flat stock. All domestic steel conforming to ASTM-A36.

SEDIMENT BAG: Bag fabricated from 4 oz./sq.yd. non-woven polypropylene geotextile reinforced with polyester mesh. Bag secured to base rim with a stainless steel strap and lock. All storm structures must have either a curb silt basket cath-all or an inlet silt basket cath-all inserted prior to construction.

No.	Date	Revision

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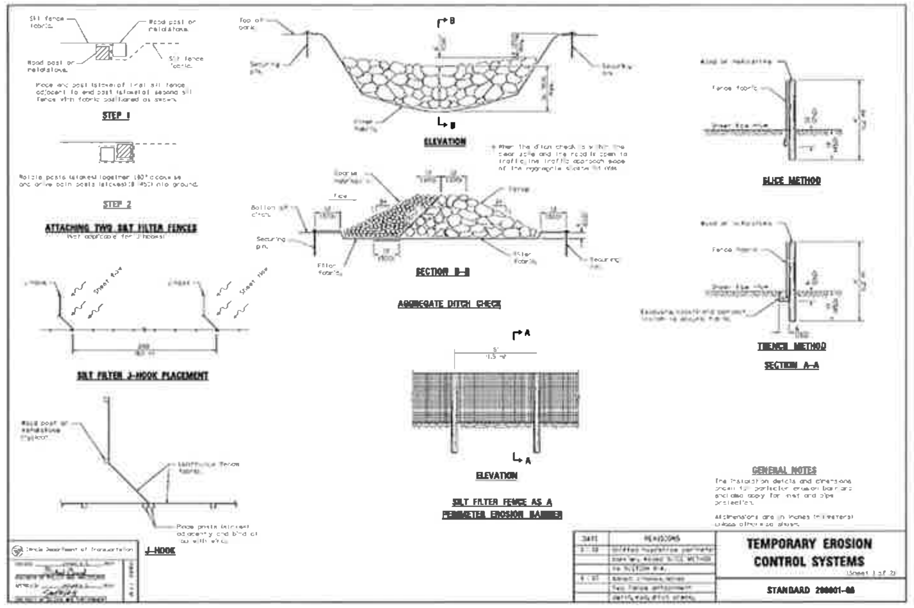
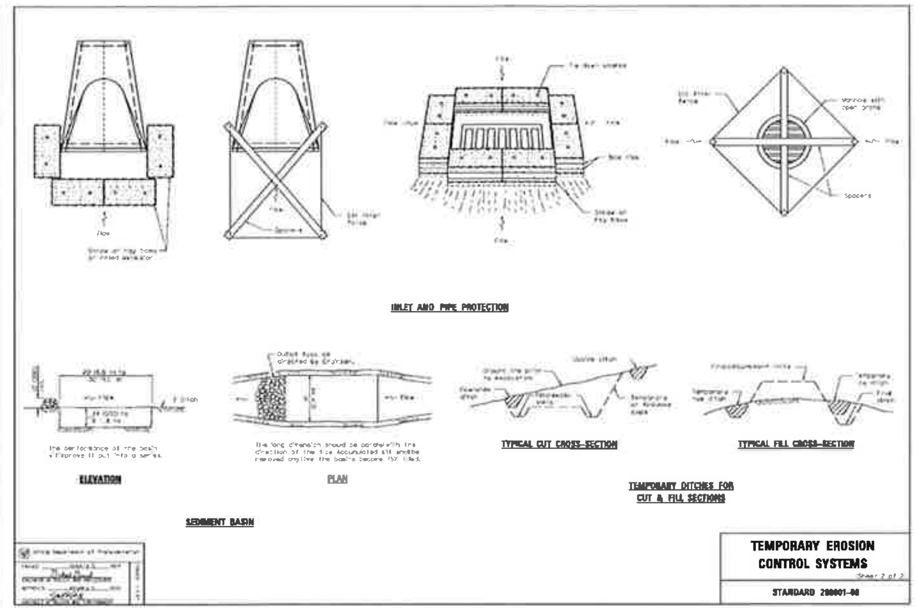
SWPP PLAN DETAILS

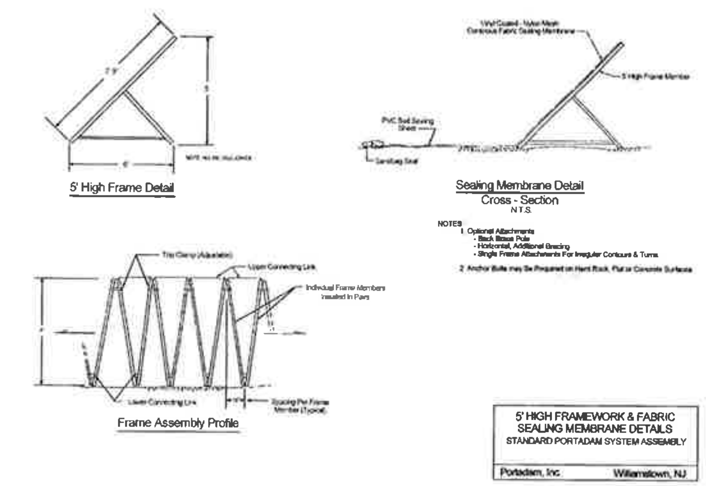
BRIARWOOD LANE RE-ALIGNMENT AND SALT CREEK CROSSING REPLACEMENT PLANS
PALATINE TOWNSHIP, ILLINOIS

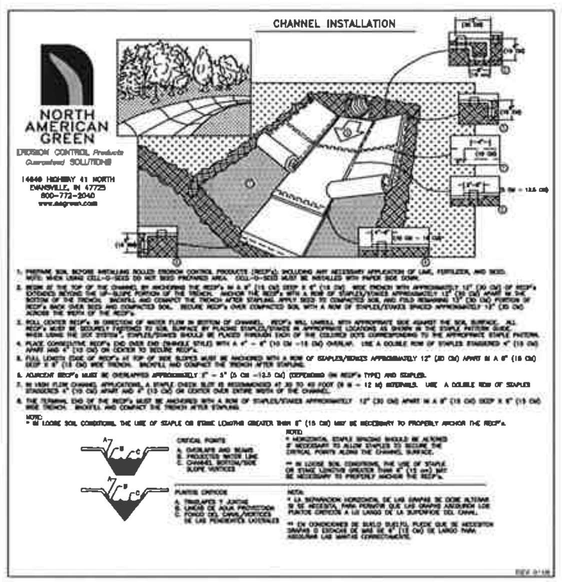
Project Manager: KAS
Engineer: JDT
Date: 10/31/2011
Project No. 08-041E
Sheet EC-3 / EC-5

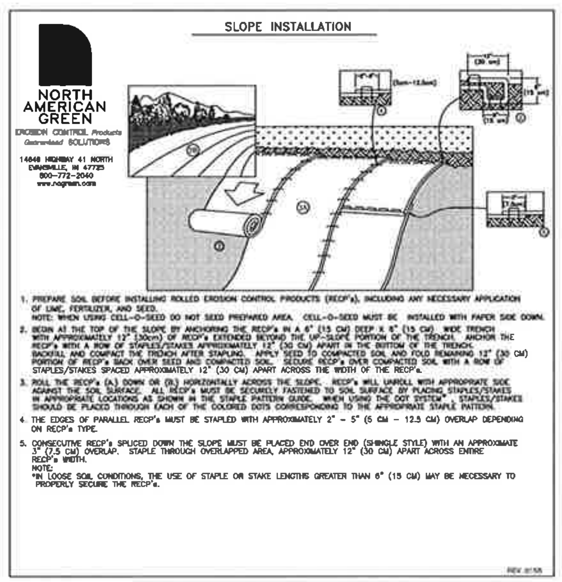
Plot Date: Oct 31, 2011 11:52am Plotted By: josh l
File Name: P:\2008\08041\Drawings\Final Engineering\08041E SWPPP.dwg

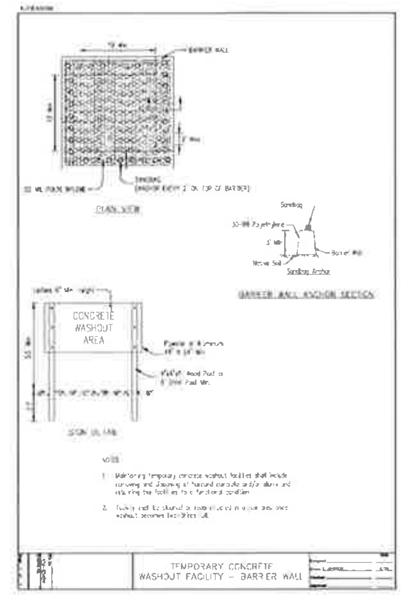


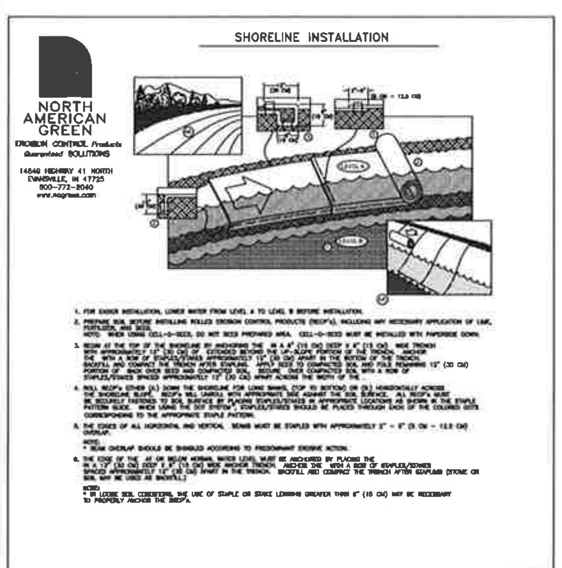












Temporary Cofferdam

1.01 DESCRIPTION

A. Furnish, install, maintain and remove temporary cofferdams as required to divert river flow and enable dewatering of sections of the river, as shown in the Contract Drawings, to allow necessary construction work.

B. The cofferdam shall consist of a Portadam "portable cofferdam system" as manufactured by Portadam Inc., Williamstown, NJ.

C. Provide pumps for initial dewatering and maintenance dewatering to collect infiltrated water for return to the river, in accordance with permit conditions.

1.02 SUBMITTALS

A. Submit the following a minimum of two weeks prior to installation.
   1. A temporary cofferdam plan including the following items as a minimum.
      a. Details, location, layout, depths, subgrade preparation and methods and sequence of installation and removal.
      b. Minimum lateral distance from the edge of the cofferdam to the limits of work.
      c. List of equipment used to install the system.
   2. Submit the manufacturer's material and installation information at least two weeks prior to installation.
   3. Proposed Dewatering Plan which identifies and describes the system for dewatering excavation areas during construction, including size and number of trenches, sumps, berms and pumps.
   4. Proposed Overtopping Contingency Plan to protect open excavation areas from erosion in the event that overtopping of the cofferdam occurs, including but not limited to the following:
      a. Notification procedures for implementation of the plan, including contingencies for covering weekends, holidays and non-working hours.
      b. Measures to flood excavation area in a controlled manner to minimize erosion and downstream material release such as pumping to equalize water levels.
   5. These submittals are submitted only for the information of the Owner and third parties for an overall understanding of the project relating to access, installation and maintenance of existing facilities, and potential impacts to surrounding areas. The Contractor shall remain responsible for the adequacy and safety of the means, methods and sequencing of construction.

1.03 QUALITY ASSURANCE

A. Temporary Cofferdam must be designed and manufactured by a temporary cofferdam manufacturer having the following minimum qualifications:
   1. Not less than ten (10) years experience in the design and manufacture of the specific cofferdams to be used.
   2. Completed not less than ten (10) successful temporary cofferdam projects of equal type, size, and complexity to this Project within the last (10) years.

B. Temporary Cofferdam must be installed by a temporary cofferdam Installer having the following minimum qualifications:
   1. Not less than ten (10) years experience in the installation of the proposed temporary cofferdam system.
   2. Completed not less than ten (10) successful cofferdams of equal type, size, and complexity as the proposed system.

1.04 DESIGN CRITERIA:

A. Design of temporary cofferdam shall meet the following minimum requirements:
   1. The temporary cofferdam shall be designed for water depths equal to the normal water elevations shown on the Contract Drawings plus a minimum freeboard of two feet.
   2. Support systems shall be designed for earth pressures, hydrostatic pressure, equipment, temporary stockpiles, construction loads, and other surcharge loads as applicable.
   3. Maintain stable river bottom from the edge of the cofferdam to the bottom of the excavation.

B. Contractor shall comply with all permit requirements and conditions.

Portadam System Basic Installation Procedure

Steel Framework:

1. Individual steel frame Components are prepared on-shore by attaching two pinned connectors at the bottom horizontal brace of two separate frames in order to construct a frame "pair", consisting of two frames and two bar connectors.
2. Frame sets are then placed directly into position by hand, off wooden floats or by crane along the desired configuration perimeter line with progressive connections made using adjustable clamp (one bolt) arrangement. Final elevation and/or direction adjustments are made at this point. Obstruction removal may be required at this point.
3. Along the predetermined installation line, the frame pairs are lowered into vertical position, adjusted and then spread at the top to form a "V". A steel spacer link is installed in the "V" to maintain distance. The frame pair is then attached to the previous frame pair using a steel, two-part, bolted clamp designed to clamp anywhere on the frame member. This adjustment permits frame pairs to be installed at different elevations as encountered over irregular contours as well as up and down slopes. Standard frame spacing is 15" or 30" per pair. Spacing can be increased for shallower water or decreased for deeper water.
4. To create a turn along the installation line, single frame members are placed vertically plumb with inside toes tight together and outside toes separated to produce a fan shape. Only the adjustable top clamp is used in corners, the upper and lower connectors are not needed.
5. To complete the assembly, heavy steel poles can be added through steel loops at the back of each frame member, both vertically and horizontally, to increase stability in soft foundation areas.

Fabric sealing membrane ("Liner").

1. Fabric sealing sheets are provided in 25' and 50' horizontal section and special outside corners (fan shaped) which can be joined by waterproof, pinned end seams. Preparation is done onshore by laying out individual liner sections and joining into the desired configuration. There are no special tools required for this operation. The assembled liner is then folded, rolled and tied into a long "sausage" shape for ease of installation on the framework structure.
2. The entire assembled liner section is then placed around the perimeter of the framework and secured to the top at each frame pair location. Once secured at the top of the frame structure, the liner is then unrolled down the diagonal face of the framework and extended out onto the existing bed at the toe of the frames. An extension of the liner is pulled horizontally out away from the toe of the framework to form a "sealing apron". The outside perimeter of the sealing apron contains a heavy chain which assists with sinking the liner. That perimeter can be buried in soft material to form a cutoff and is normally sandbagged into place to assist with sealing.
3. Preparations at the shoreline ends and at the turns are then completed to insure a proper seal.
4. Pumping equipment is positioned in the enclosed area in sump holes, if possible. Once the pumps are started, the water head differential sucks the liner membrane tightly onto the framework and the surrounding bed area. Final liner adjustments are then made. Minor leaks under the sealing apron are located and sealed with sandbags.

Removal.

1. Upon completion of all internal construction or repair work and clean up, the enclosed area is then flooded, thereby equalizing pressure on the structure and releasing suction on the liner. All fabric membrane sections are removed first, then all steel framework is lifted out by the same method used for installation. All components are checked for damage and inventoried. All components are reusable and are then packaged for shipping.
2. Divers may be used to check all disturbed bottom areas for objects left. All components must be accounted for.

Revision	Date	No.

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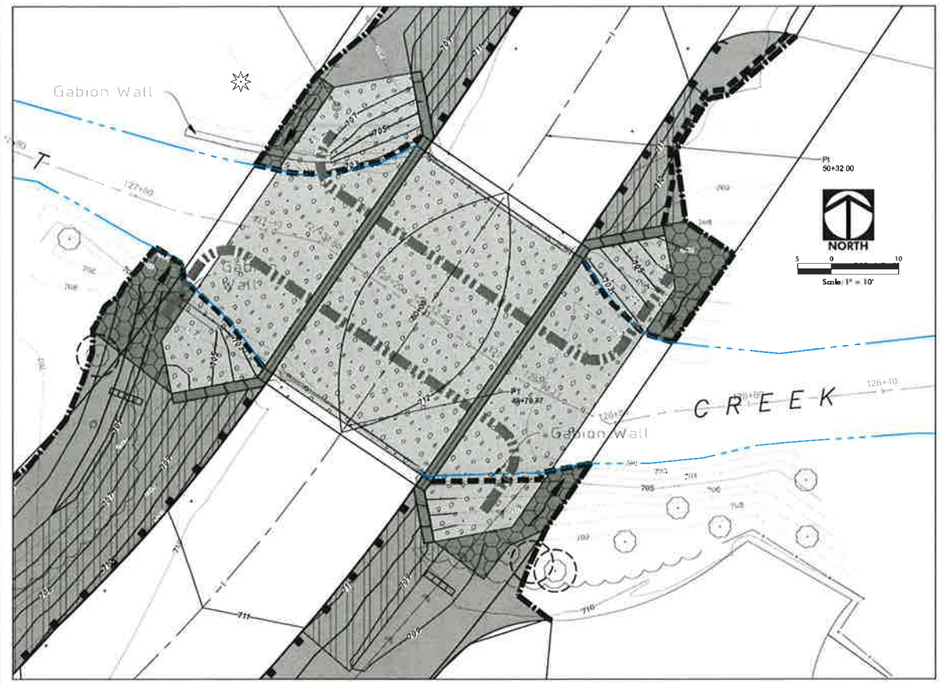
SWPP PLAN DETAILS

BRIARWOOD LANE RE-ALIGNMENT AND SALT CREEK CROSSING REPLACEMENT PLANS
PALATINE TOWNSHIP, ILLINOIS

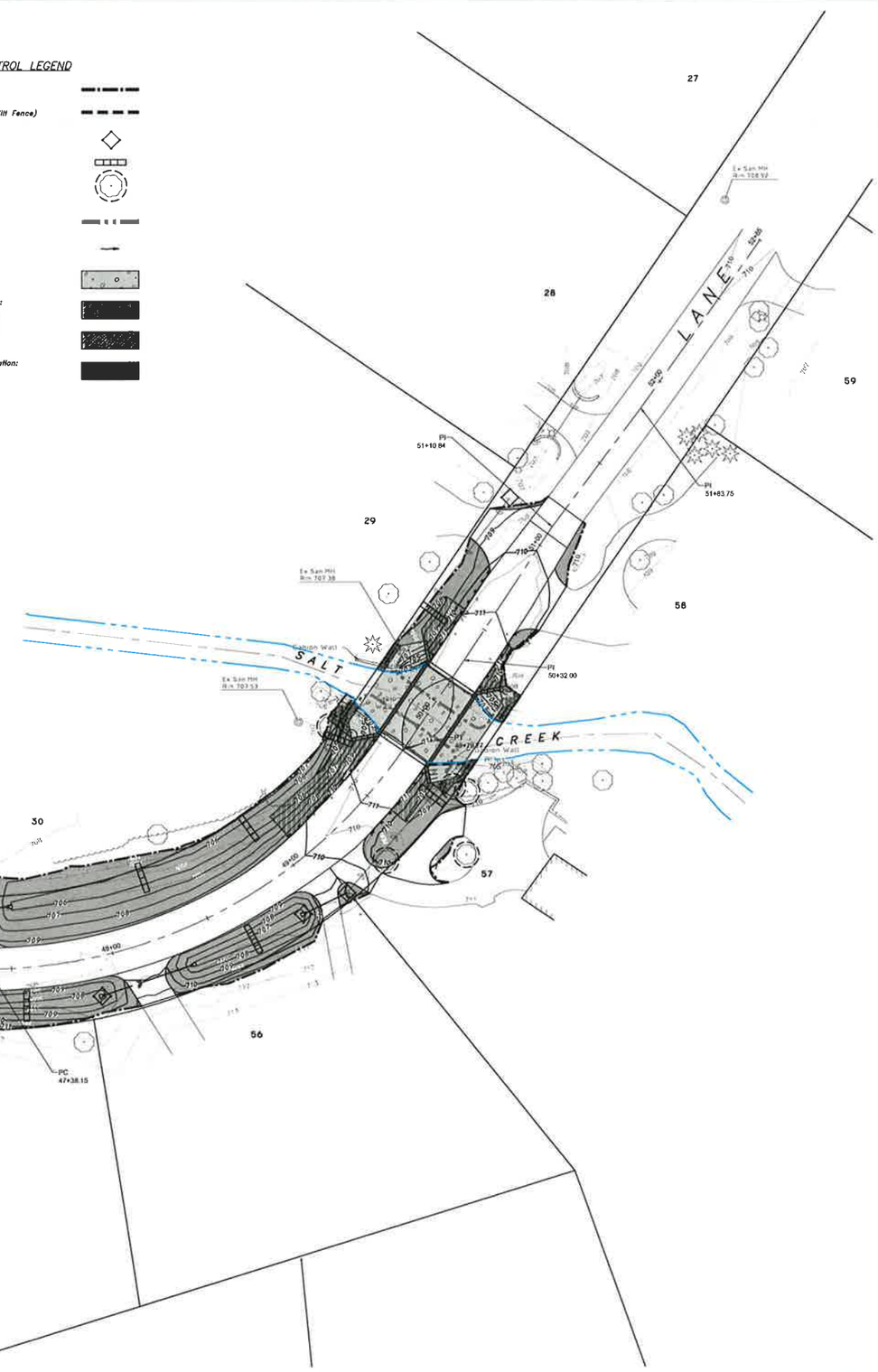
Project Manager: KAS
Engineer: JDT
Date: 10/31/2011
Project No. 08-041E
Sheet EC-4 / EC-5



Salt Creek Crossing Detail (1" = 10')

EROSION CONTROL LEGEND

- Limits of Construction
- Perimeter Erosion Control Barrier (Silt Fence)
- Inlet Protection
- Ditch Checks
- Tree Protection
- Potential Coffer Dam Location
- Temporarily Divert Drainage Around Coffered Areas as Necessary
- Scour Protection (See Detail)
- Standard Disturbed Area Restoration: 4" Topsoil, Class 2A Seed Mix and Erosion Control Blanket (NAG DS75)
- Side Slopes > 3:1 Area Restoration 4" Topsoil, Class 2A Seed Mix and Erosion Control Mat (NAG SC250)
- Creek Bank Side Slope Area Restoration: 4" Topsoil, Class 4 Seed Mix and Erosion Control Mat (NAG SC250)



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No. | Date | Revision

SWPP PLAN

BRIARWOOD LANE RE-ALIGNMENT AND SALT CREEK CROSSING REPLACEMENT PLANS
PALATINE TOWNSHIP, ILLINOIS

Project Manager: K A S
Engineer: J D T
Date: 10/31/2011
Project No. 08-041E
Sheet EC-5 / 21

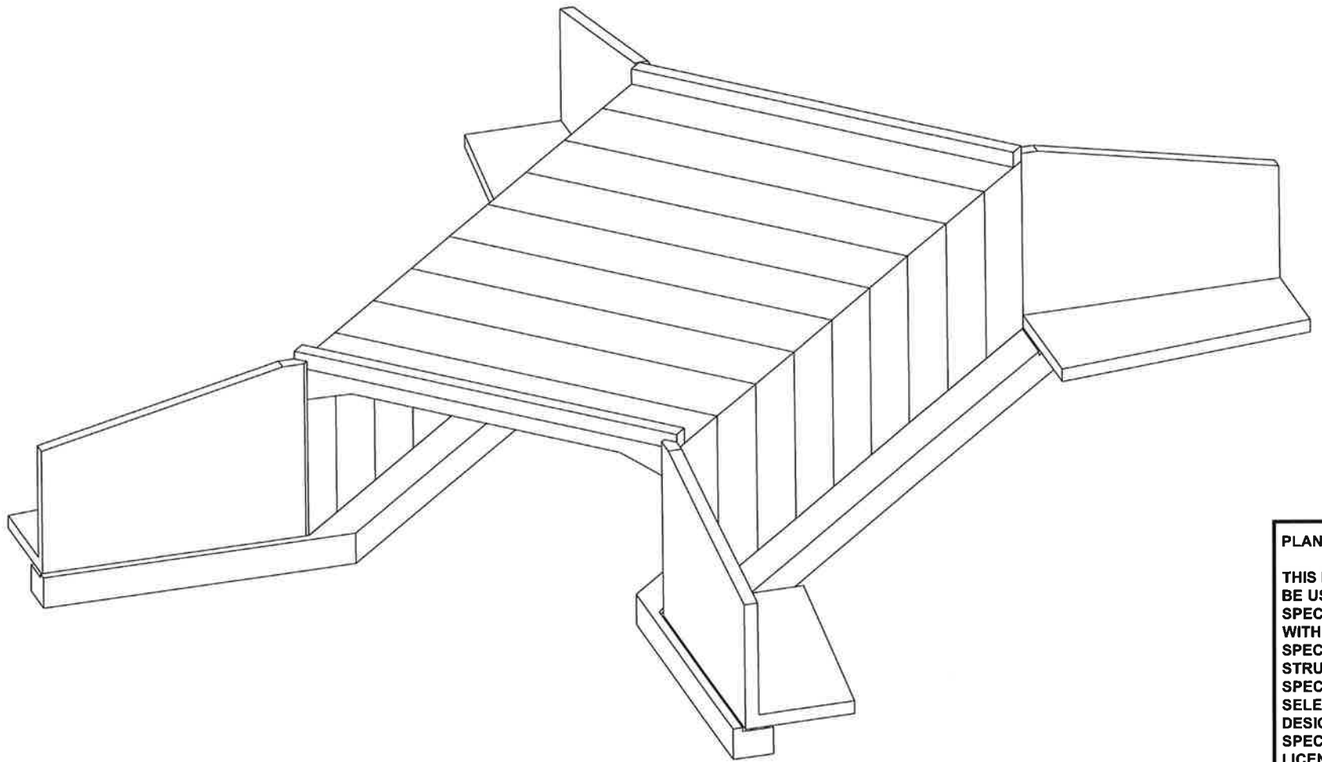
Plot Date: Nov 02, 2011 10:16am Plotted By: pnh1
File Name: P:\2008\08041E\Drawings\Civil\Engineering\08041E Engineering.dwg

INDEX	
1	TITLE SHEET
2	BRIDGE DETAILS
3	FOOTING AND JOINT DETAILS
4	HEADWALL AND WINGWALL DETAILS
5	GENERAL NOTES AND SPECIFICATIONS

/ HY-SPAN®

The Instant Bridge™

GUIDELINES FOR HY-SPAN BRIDGE SYSTEMS
PREPARED FOR
KENTUCKY TRANSPORTATION CABINET



PLAN NOTE:

THIS PLAN HAS BEEN PROVIDED BY ICPC/HY-SPAN AND SHALL BE USED AS A GUIDE. ALL REFERENCES TO KYTC STANDARD SPECIFICATIONS CONTAINED HERE-IN SHALL BE REPLACED WITH APPLICABLE SECTIONS FROM THE IDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. STRUCTURE SHALL MEET ALL IDOT, CCHD AND AASHTO SPECIFICATIONS AND DESIGN REQUIREMENTS. THE SUPPLIER SELECTED BY THE CONTRACTOR SHALL SUBMIT COMPLETE DESIGN CALCULATIONS AND SHOP DRAWINGS FOR THIS SPECIFIC PROJECT, PREPARED AND SEALED BY AN ILLINOIS LICENSED STRUCTURAL ENGINEER, FOR APPROVAL.

ICPC/HY-SPAN CONTACT: **STEVEN SMART**
317-262-4920
ssmart@icpcompany.net

/ HY-SPAN® The Instant Bridge™

Sym.	Revisions	Date

Designed: SJC
Drawn: AJE/NAM
Checked: SJC
Scale: As Noted
Date: 7/13/06

HY-SPAN BRIDGE SYSTEM

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INDIANAPOLIS, IN	(317)262-4920
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ST. LOUIS, MO	(314)842-2900
TOLEDO OH	(419)841-3361

Project No:

Sheet No: 1 of 5

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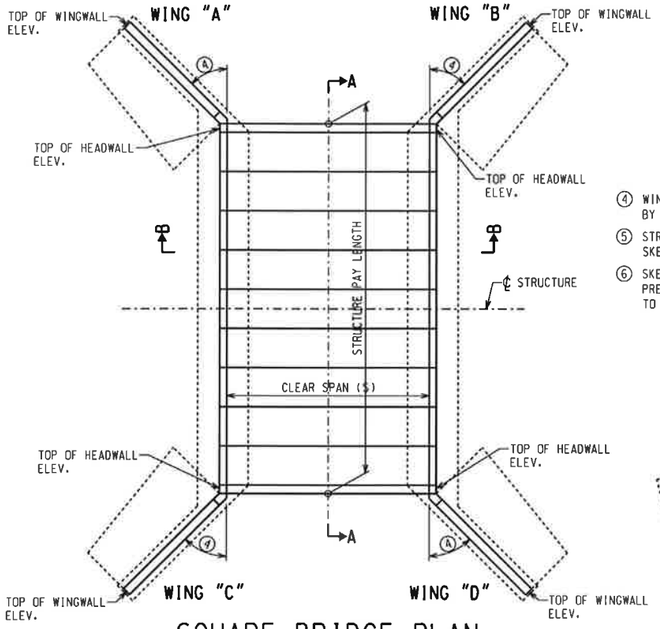
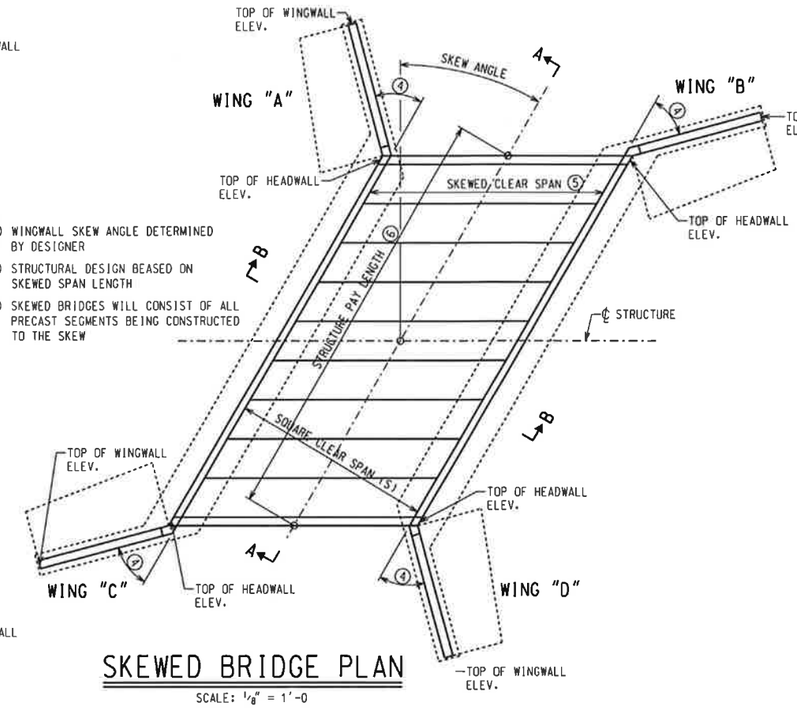


SQUARE BRIDGE PLAN

SCALE: $^1/_8$" = 1'-0



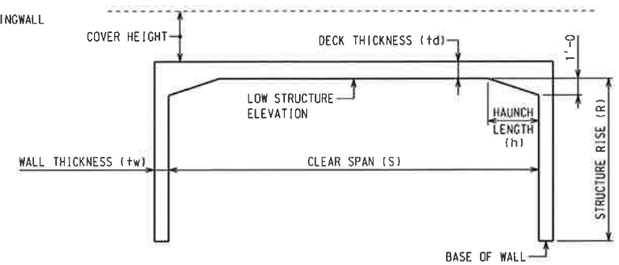
SKEWED BRIDGE PLAN

SCALE: $^1/_8$" = 1'-0

④ WINGWALL SKEW ANGLE DETERMINED BY DESIGNER

⑤ STRUCTURAL DESIGN BEASED ON SKEWED SPAN LENGTH

⑥ SKEWED BRIDGES WILL CONSIST OF ALL PRECAST SEGMENTS BEING CONSTRUCTED TO THE SKEW

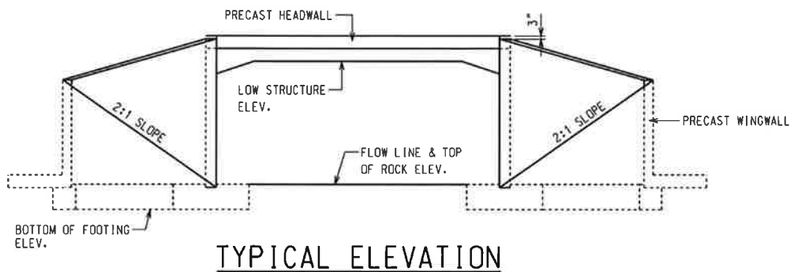


S ① (FT)	R ① (FT)	td (IN)	tw (IN)	h (FT)	MAXIMUM ② COVER HEIGHT	WATERWAY ③ OPENING
14	4	12	10	3	15'-0	53.0
14	6	12	10	3	15'-0	81.0
14	8	12	10	3	15'-0	109.0
14	10	12	10	3	15'-0	137.0
16	4	12	10	3	15'-0	61.0
16	6	12	10	3	15'-0	93.0
16	8	12	10	3	15'-0	125.0
16	10	12	10	3	15'-0	157.0
18	4	12	10	3	15'-0	69.0
18	6	12	10	3	15'-0	105.0
18	8	12	10	3	15'-0	141.0
18	10	12	10	3	15'-0	177.0
20	4	12	10	3	15'-0	77.0
20	6	12	10	3	15'-0	117.0
20	8	12	10	3	15'-0	157.0
20	10	12	10	3	15'-0	197.0
22	4	12	11	3	8'-0	85.0
22	6	12	10	3	8'-0	129.0
22	8	12	10	3	8'-0	173.0
22	10	12	10	3	8'-0	217.0
24	4	12	12	6.67	8'-0	89.3
24	6	12	12	6.67	8'-0	137.3
24	8	12	12	6.67	8'-0	185.3
24	10	12	12	6.67	8'-0	233.3
26	4	12	14	6.67	5'-0	97.3
26	6	12	12	6.67	5'-0	149.3
26	8	12	12	6.67	5'-0	201.3
26	10	12	12	6.67	5'-0	253.3
28	4	12	15	6.67	5'-0	105.3
28	6	12	13	6.67	5'-0	161.3
28	8	12	12	6.67	5'-0	217.3
28	10	12	12	6.67	5'-0	273.3
30	4	13	17	6.67	4'-0	113.3
30	6	13	15	6.67	4'-0	173.3
30	8	13	14	6.67	4'-0	233.3
30	10	12	14	6.67	4'-0	293.3
32	4	13	19	6.67	4'-0	122.3
32	6	13	17	6.67	4'-0	185.3
32	8	13	14	6.67	4'-0	249.3
32	10	12	14	6.67	4'-0	313.3
34	4	13	20	14	4'-0	122.0
34	6	13	18	14	4'-0	190.0
34	8	13	15	14	4'-0	258.0
34	10	13	15	14	4'-0	326.0
36	6	14	19	14	4'-0	202.0
36	8	14	16	14	4'-0	274.0
36	10	13	16	14	4'-0	346.0
36	12	13	16	14	4'-0	418.0
38	8	14	18	14	3'-0	290.0
38	10	14	18	14	3'-0	366.0
40	8	15	20	14	3'-0	306.0
40	10	15	20	14	3'-0	386.0

① SPAN AND RISE COMINATIONS SHOWN ARE NOMINAL. HY-SPAN STRUCTURES CAN BE FURNISHED IN VIRTUALLY ANY COMBINATION OF SPAN AND RISE. EITHER THE SPAN AND/OR RISE MAY BE FRACTIONAL TO MEET SPECIFIC SITE REQUIREMENTS.

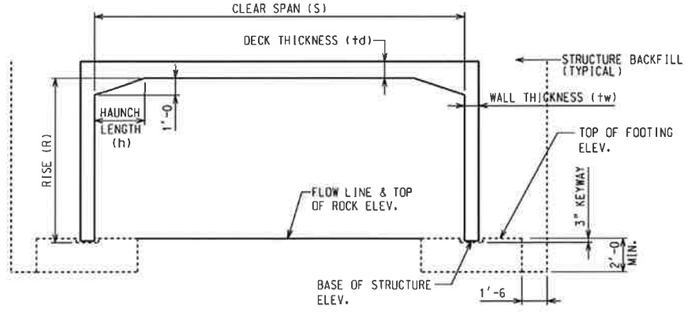
② MAXIMUM COVER HEIGHTS ARE FOR THE MINIMUM MEMBER SIZES REQUIRED FOR EACH SPAN RANGE. STRUCTURES EXCEEDING THIS FILL CAN BE FURNISHED BY INCREASING MEMBER SIZES AS DETERMINED DURING THE DESIGN PROCESS.

③ WATERWAY AREA SHOWN IS FROM LOW STRUCTURE ELEVATION TO BASE OF WALL WITH HAUNCH AREAS DEDUCTED.



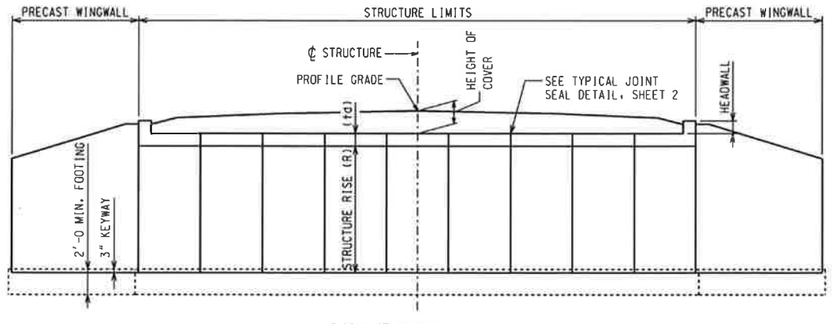
TYPICAL ELEVATION

SCALE: $^3/_{16}$" = 1'-0



SECTION B-B

SCALE: $^1/_4$" = 1'-0



SECTION A-A

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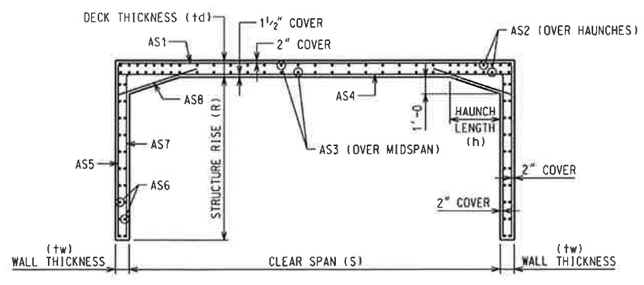

TYPICAL STRUCTURE REINFORCING

SCALE: $^1/_4$" = 1'-0

NOTE: REINFORCING SIZE AND SPACING DETERMINED DURING PREPARATION OF STRUCTURAL DESIGN AND SHOP DRAWINGS.

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Sym.	Revisions	Date

Designed: SJC
Drawn: AJE/MAM
Checked: SJC
Scale: As Noted
Date: 7/13/06

HY-SPAN BRIDGE SYSTEM

BRIDGE DETAILS

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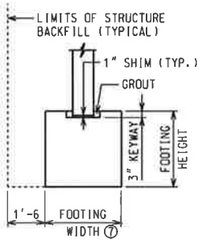
Project No:

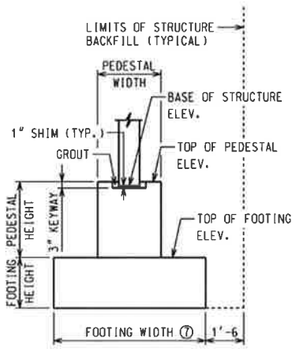
Sheet No: 2 of 5



TYPICAL CULVERT FOOTING

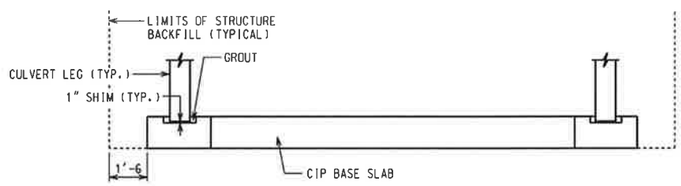
SCALE: $\frac{3}{8}$"=1'-0

⑦ FOOTING WIDTH DETERMINED FOR EACH STRUCTURE BASED ON APPLIED LOADS AND GEOTECHNICAL PARAMETERS.



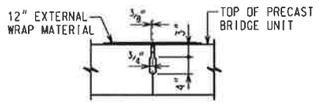
TYPICAL CULVERT FOOTING WITH PEDESTALS

SCALE: $\frac{3}{8}$"=1'-0



TYPICAL BASE SLAB DETAIL

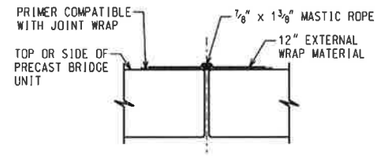
SCALE: $\frac{3}{8}$"=1'-0



TYPICAL KEYWAY DETAIL

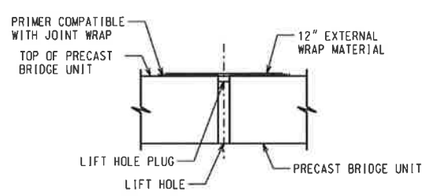
(DECKS WITH LESS THAN 3' OF COVER)
SCALE: $\frac{3}{4}$"=1'-0

NOTE: AFTER ERECTION THE JOINT SHALL BE FILLED WITH NON-SHRINK GROUT.



TYPICAL JOINT SEAL DETAIL

(WALLS & DECKS WITH 3'-0 OR GREATER COVER)
SCALE: 1" = 1'-0



TYPICAL LIFTING INSERTS

SCALE: 1" = 1'-0

HY-SPAN / The Instant Bridge®

Date	Revisions	Sym.	Designed: SJC	Drawn: AJE/NAM	Checked: SJC	Scale: As Noted	Date: 7/13/06

HY-SPAN BRIDGE SYSTEM

FOOTING AND JOINT DETAILS

HY-SPAN SYSTEMS, INC./ A SUBSIDIARY OF INDEPENDENT CONCRETE PIPE CO.

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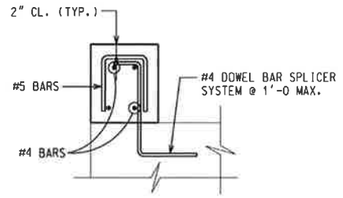
LOUISVILLE, KY	(502)448-2920
INDIANAPOLIS, IN	(317)262-4920
MISHAWAKA, IN	(219)255-5401
ST. LOUIS, MO	(314)842-2900
TOLEDO OH	(419)841-3361

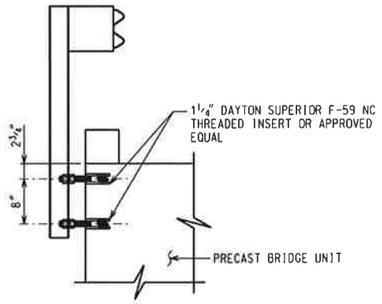
Project No:

Sheet No: 3 of 5



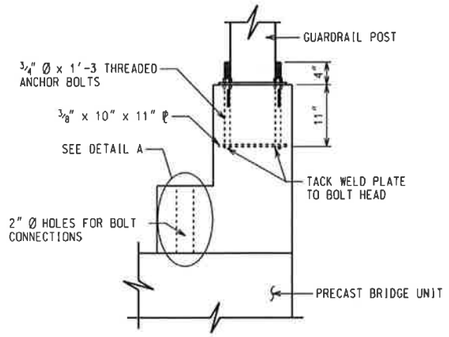
TYPICAL PRECAST HEADWALL

(CAST ON AT PLANT)
SCALE: 1" = 1'-0



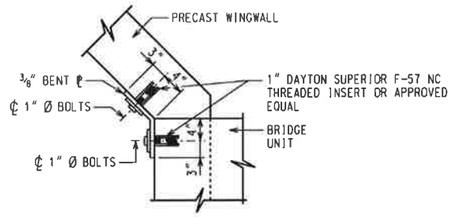
SIDE MOUNTED GUARDRAIL

SCALE: 1"=1'-0



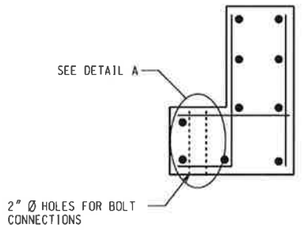
TOP MOUNTED GUARDRAIL

SCALE: 1"=1'-0



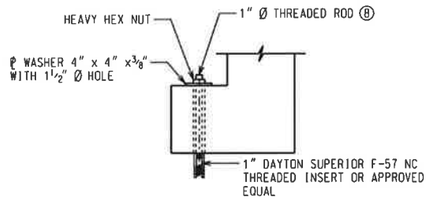
TYPICAL WINGWALL CONNECTION DETAIL

SCALE: 1"=1'-0



TYPICAL PRECAST HEADWALL

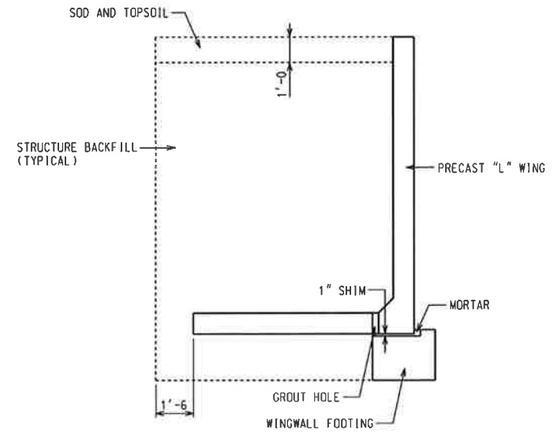
(FIELD BOLTED AT SITE: HEIGHT GREATER THAN 2')
SCALE: 1"=1'-0



DETAIL "A"

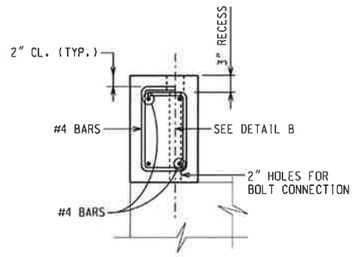
SCALE: 1"=1'-0

⑧ REQUIRED SPACING OF INSERTS AND THREADED RODS TO BE DETERMINED AS PER STRUCTURAL DESIGN AND SHOP DRAWING PREPARATION.



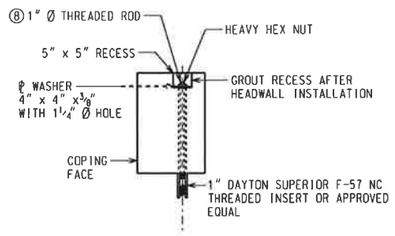
TYPICAL PRECAST WINGWALL

SCALE: ⅜"=1'-0



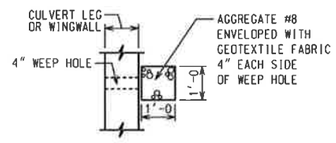
TYPICAL PRECAST HEADWALL

(FIELD BOLTED ON SITE: HEIGHT LESS THAN 2')
SCALE: 1"=1'-0



DETAIL "B"

SCALE: 1"=1'-0



TYPICAL SECTION AT WEEP HOLE

SCALE: ½" = 1'-0

HY-SPAN BRIDGE SYSTEM

HEADWALL AND WINGWALL DETAILS

Designed:	SJC
Drawn:	AJE/WAM
Checked:	SJC
Scale:	As Noted
Date:	7/13/06

Revisions

Sym.	Date

HY-SPAN SYSTEMS, INC./ A SUBSIDIARY OF INDEPENDENT CONCRETE PIPE CO.

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TOLEDO OH	(419)841-3361

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GENERAL NOTES AND SPECIFICATIONS FOR HY-SPAN BRIDGE SYSTEMS

DESCRIPTION

(1) This work shall consist of constructing a precast reinforced concrete three-sided flat-topped structure with headwalls and wingwalls in accordance with the design plans, these standard details, and the following specifications.

MATERIALS

(2) All precast concrete work will be performed by Independent Concrete Pipe Corporation /Hy-Span Bridge Systems, a KYTC approved supplier of precast concrete components. All components will be in strict compliance with section 605 of the KYTC Standard Specifications for Road and Bridge Construction.

(3) All materials shall be in conformance with KYTC Standard Specifications for Road and Bridge Construction, the KYTC List of Approved Materials, section 106.04 of the KYTC Standard Specifications regarding the Buy American Requirement, and all applicable ASTM and AASHTO standards.

(4) Reinforcing steel in structure sections shall be welded wire fabric, welded deformed steel wire fabric, or deformed billet steel bars in accordance with KYTC Standard Specifications, Section 811. Reinforcing steel in the wingwalls, pedestals, base slabs, headwalls, and footings shall be deformed billet steel bars in accordance with KYTC Standard Specifications, Section 811. Reinforcing steel in headwalls and structure sections with less than two feet of cover shall be epoxy coated.

(5) Concrete shall be in accordance with Section 601 of the KYTC Standard Specifications utilizing the following design strengths. The minimum 28 day concrete design strength shall be f'c = 5,000 psi for structure sections, f'c = 4,000 for headwalls and wingwalls and f'c = 3,500 psi for footings. Structure sections for spans greater than 30' shall utilize f'c from 5,000 psi up to a maximum of 6,000 psi as determined during design of the structure.

(6) Steel used in bolted connections of wingwalls to structure sections shall be in accordance with ASTM A 709 grade 36 (ASTM A 709M grade 250) and galvanized after fabrication in accordance with ASTM A 153 (ASTM A 153M). Class A or B. Bolts shall be in accordance with ASTM A 307 and galvanized in accordance with ASTM A 153 (ASTM A 153M)

DESIGN

(7) Hy-Span Systems on behalf of the Contractor shall submit, for approval, three copies of design computations and shop drawings. The index sheet of the design calculations and each sheet of the shop drawings shall be signed by and bearing the seal of a Kentucky licensed professional engineer. The shop drawings shall include all details, dimensions, and quantities necessary to construct the structure, wingwalls, and headwalls if applicable and shall include, but not be limited to, the following information.

(a) Structure span and rise;

(b) Structure section details showing all concrete dimensions and reinforcing steel requirements;

(c) Design computations and details for pedestals, when required;

(d) Footing details showing all concrete dimensions, elevations, and reinforcing steel with bar size, bar bending diagrams, length, and spacing indicated. Footing plan and section views shall be provided. The actual soil bearing pressure shall be noted on the footing detail sheets.

(e) Wingwall design computations and details showing all concrete dimensions, reinforcing steel, bar bending diagrams, and anchorage details. Wingwall plan, elevation, and section views shall be provided.

(f) Headwall details, showing all concrete dimensions, reinforcing steel, bar bending diagrams, and anchorage details. Headwall elevation and section views shall be provided.

(g) Structure backfill type and limits for the structure and wingwalls.

(8) Structure section or wingwall fabrication shall not begin until written approval of the shop drawings and design computations have been received from the Engineer.

(9) The structure sections shall be designed for:

(a) The weight of the structure.

(b) Superimposed dead load including the weight of pavement and backfill.

(c) An allowance for a future wearing surface as shown on the Design Plans or 60 psf if no criteria is shown.

(d) Horizontal earth pressures applied to the sides of the structure based on a minimum equivalent fluid pressure of 40 lb/ft3 (6.3 kN/m3).

(e) The live load plus impact shown on the Design Plans for the structure, or HL-93 in accordance with the AASHTO LRFD Bridge Design Specifications, if no live load design criteria is shown on the Design Plans.

(10) Wingwalls and headwalls shall be designed based on a minimum equivalent fluid pressure of 40 lb/ft3 (6.3 kN/m3). Horizontal pressures shall be increased for sloping backfill surfaces and live load surcharge. Footings shall be designed for the allowable soil bearing shown on the plans. Wingwalls and wingwall footings shall be designed in accordance with the soil parameters shown on the plans. Wingwall footings and headwall connections shall be checked for sliding and for overturning utilizing a factor of safety of 1.5 in accordance with KYTC Guidance Manual SD-405. Headwalls with bridge rail mounted on top and the anchorage of the headwall to the structure section shall be designed for AASHTO traffic railing loadings. Continuity shall be established between the structure footing and the wingwall footing.

(11) The cover dimension over the top mat of reinforcement shall be a minimum of 2 in. (50 mm). The cover over the lower mat of reinforcement in the structure top shall be a minimum of 1.5 in. (40 mm). The clear distance of the end circumferential reinforcement shall not be less than 1 in. (25 mm) nor more than 2 in. (50 mm) from the ends of the structure section. The ends of the longitudinal distribution reinforcement shall not be more than 2 in. (50 mm) from the ends of the structure section.

(12) Cover for wingwall, pedestal, and headwall reinforcement shall be a minimum of 2 in. (50 mm). Cover for footing and base slab reinforcement shall be 3 in. (75 mm) for the top and sides and 4 in.(100 mm) for the bottom.

(13) Except as noted herein, reinforcing steel splicing and spacing requirements shall be in accordance with the AASHTO document shown on the General Plan for the structure or the AASHTO LRFD Bridge Design Specifications if no AASHTO document is shown. Tension splices in circumferential reinforcement shall be made by lapping. Deformed billet steel bars used for longitudinal distribution reinforcement shall have a center to center spacing not to exceed 12 in. The maximum spacing for wingwall reinforcing steel shall be 18 in. (450 mm) for horizontal bars and 12 in. (300 mm) for vertical bars. Exterior corner reinforcement in the bridge units shall be fully developed beyond the point where it is no longer required to resist flexure.

(14) Weep holes shall be included in the structure and wingwalls in accordance with KYTC Standard Specification 610.03.03.

(15) Wingwall sections are designed as self supporting sections. Connections to the structure or adjacent wingwall sections do not carry any calculated forces and are for continuity only.

MANUFACTURE

(16) Handling devices or holes will be permitted in each structure or wingwall section. However, not more than six holes shall be cast or drilled in each section. Cast holes shall be tapered.

(17) The section ends shall be of such design and shall be so formed that when the structure sections are erected, they shall make a continuous line of structure with a smooth interior free of irregularities.

(18) The structure sections and wingwalls shall be free of fractures. Exposed edges of precast elements shall be beveled ¾". The ends of the structure sections shall be normal to the walls and centerline, except where beveled ends are specified. The surface of the structure section shall be a smooth steel form or troweled surface. Trapped air pockets causing surface defects shall be considered as part of a smooth steel form finish.

(19) Wingwalls shall be given a finish in accordance with KYTC Standard Specification 601.03.18(A).

(20) The structure units shall not be stored in an upright position until the designated handling and storage compressive strength, as shown on the shop drawings, has been achieved.

(21) Each structure section and wingwall shall be clearly marked with waterproof paint. The following information shall be shown on the inside face of each wingwall and on a vertical leg of each structure section.

(a) structure span and rise (structure sections only)

(b) date of manufacture

(c) name or trademark of the manufacturer

(d) design earth cover

TESTING AND INSPECTION

(22) Concrete compressive strength shall be determined from compression tests made on cylinders or cores. For cylinder testing, a minimum of four cylinders shall be taken during each production run. For core testing, one core shall be cut from three structure sections selected at random from each group of 15 structure sections or less of a particular size and production run. One core shall be cut from each group of four or fewer wingwalls. For each continuous production run, each group of 15 structure sections of a single size or fraction thereof or four wingwalls shall be considered separately for the purpose of testing and acceptance. A production run shall be considered continuous if not interrupted for more than three consecutive days.

(23) Cylinders shall be made and tested in accordance with ASTM C 39. Cores shall be obtained and tested for compressive strength in accordance with ASTM C 497 (ASTM C 497M).

(24) The compressive strength of the concrete cylinders tested in each group of sections as defined above will be acceptable when the average core test strength is equal to or greater than the design concrete strength, not more than 10% of the cylinders tested have a compressive strength less than the design concrete strength, and no cylinder tested has a compressive strength less than 80% of the design concrete strength.

(25) If the compressive strength of the cylinders tested does not meet the above requirements, the acceptability of the production run may be determined by testing cores from the structure section or wingwall. The production group is acceptable if the average core concrete strength is greater than the design concrete strength. When the compressive strength of the core tested is less than the design concrete strength, the precast element from which that core was taken may be recored. If the compressive strength of the recore is equal to or greater than the design concrete strength, the compressive strength of the concrete in that group of sections will be acceptable.

(26) The core holes shall be plugged and cured by the manufacturer in such a manner that the structure will meet all the test requirements of these specifications. Structure sections or wingwalls repaired accordingly will be considered satisfactory for use.

(27) The manufacturer shall furnish all facilities, equipment, and personnel necessary to conduct the required testing.

(28) Structure sections or wingwalls shall be considered acceptable based on meeting the above test results subject to the following exceptions.

(a) fractures or cracks passing through the wall, except for a single end crack which does not exceed one half the thickness of the wall;

(b) defects which indicate proportioning, mixing, or molding which are not in accordance with this specification;

(c) honeycombed or open texture; or

(d) damaged section ends, where such damage prevents making a satisfactory joint

(29) Structure sections or wingwalls may be repaired, if necessary, due to imperfections in manufacture, handling damage, or construction. Repairs will be acceptable if it is determined that the repairs are sound, properly finished and cured, and if the repaired structure section or wingwall is in accordance with the requirements herein.

INSTALLATION

(30) The soils in the bottom of the excavation shall be compacted to 95% of the maximum dry density. If 95% of the maximum dry density cannot be obtained in the bottom of the excavation or in other areas, the KYTC and/or their geotechnical representative shall be contacted for additional recommendations. If during construction, soft soils are encountered at depths that make removal impractical, KYTC and/or their geotechnical representative shall be contacted for additional recommendations.

(31) Footings may be cast-in-place or precast. When a precast footing is utilized, a 4 in. (100 mm) layer of uniformly compact sand shall be placed under the full width of the footing. All footings shall be given a floated surface finish in accordance with KYTC Standard Specification 601.03.18(C). The footing concrete shall reach a compressive strength of 2,500 psi (17 500 kPa) before placement of the structure sections or wingwalls. The surface shall not vary more than ¼ in. in 10 ft (6 mm in 3 m) when tested with 10 ft (3 m) straightedge.

(32) When a reinforced concrete pedestal is required between the base of the structure leg and the top of the footing, the Contractor shall have the option of providing a structure with extended legs or constructing the pedestals.

(33) The structure sections and wingwalls shall be set on masonite. A minimum gap of 0.5 in. (13 mm) shall be provided between the footing and the bottom of each section or wingwall. The gap shall be filled with a mortar in accordance with KYTC Standard Specifications Section 601. Structure legs shall be grouted or adequately restrained prior to applying any loads to the top of the culvert.

(34) The structure sections with less than 3 ft (0.9 m) of cover shall be produced with a minium 4 in. (100 mm) deep by 1.5 in. (40 mm) wide keyway joint. Structures with 3 ft (0.9 m) or more of cover may be produced with either the above keyway or butt joints. Mortar in accordance with KYTC Standard Specifications Section 601 shall be placed in the keyway joint.

(35) All butt joints between structure sections shall be covered with a external joint wrap in accordance with ASTM C 877 (ASTM C 877M), type II. The surface shall be free of dirt before the joint material is applied. The entire joint shall be continuously covered. Joints between structure sections and wingwalls and between structure sections and headwalls shall be covered with either the same wrap used between structure sections or with geotextile in accordance with KYTC Standard Specifications Section 214.

(36) The external joint wrap shall be kept in its proper location over the joint and care shall be taken to prevent damage during the backfilling operation.

(37) Tapered or drilled holes for handling shall be filled in accordance with the applicable provisions of KYTC Standard Specifications Section 601. Prior to backfilling the structure, all holes shall be covered with joint wrap material with a minimum width of 9 in. (225 mm).

(38) Structure backfill shall be placed and compacted in accordance with KYTC Standard Drawing RDI-120-03.

(39) When the level of structure backfill reaches the top of the structure, two lifts shall be spread and hand compacted over the structure without traversing the structure with heavy equipment. Compaction with heavy equipment will not be allowed until a minimum of two lifts have been placed, hand compacted, and tested.

(40) Structure backfill shall be placed and compacted to the same elevation on both sides of the structure before proceeding to the next layer.

(41) When the height of cover as shown on the plans is 12 in. (300 mm) or less, the structure under the paved portion of the roadway and shoulders shall be backfilled with flowable fill to the top of the vertical leg of the structure.

(42) The operation of equipment over the structure shall be in accordance with the structure manufacturer's recommendations.

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HY-SPAN SYSTEMS, INC./ A SUBSIDIARY OF INDEPENDENT CONCRETE PIPE CO.
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HY-SPAN The Instant Bridge

Revisions	Date

Designed: SJC
Drawn: AJE/MAM
Checked: SJC
Scale: As Noted
Date: 7/13/06

HY-SPAN BRIDGE SYSTEM

GENERAL NOTES AND SPECIFICATIONS

Project No:

Sheet No: 5 of 5