MAURER ▲ STUTZ, INC.
ENGINEERS SURVEYORS
7615 North Harker Dr. TEL 309-693-7615
Peoria, IL 61615 FAX 309-693-7616

- David L. Maurer, PE, SE
- Joseph D. Stutz, PE, PLS
- Steven P. Arahood, PE
- Andrew D. Canopy, PE, PLS
- Kristen E. Fields, PE, SE
- Keith J. Plavec, PE
- Terry L. Feldmann, PE

STRUCTURE GEOTECHNICAL REPORT

EXISTING S.N. 052-0041
PROPOSED S.N. 052-0077

Town Hall Road (TR 230) over Drainage Ditch
Section (114-1)BR-2
Lee County

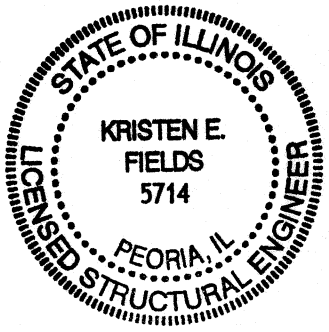
P-92-102-05
Contract No. 64B39
PTB NO. 136 ITEM 8

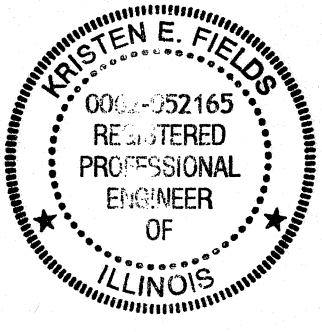
Prepared By: Kristen Fields
Maurer-Stutz, Inc.
7615 N. Harker Drive
Peoria, IL 61615
309-693-7615

Kristen Fields, PE, SE
S.E. No.: 5714
Exp.: 11/08
P.E. No.: 062-052165
Exp.: 11/09

Date: September 17, 2007
Rev. Date: October 3, 2008

Attachments to Report :
- Preliminary General Plan and Profile
- Topographic Plan
- Soil Profile
- Location Map
- Geotechnical Data: Soil Borings





Note:

This SGR, previously approved on January 2008, has been updated by the BBS Foundations and Geotechnical Unit due to significant changes to the proposed structure and scour depths, as well as updating some aspects to comply with current policy.

Summary of changes:

- Updated scour information.
- Updated seismic data.
- Pile Design Tables were updated from ASD to LRFD; in addition, only metal shells need be considered. These revised Pile Design Tables were provided with and without downdrag losses.
- Single span bridge option was removed.
- Updated settlement estimates and reiterated recommendation of building the new embankment first.
- Type 2 Cofferdam with sealcoat shall be considered if footings are to be cast-in-place, due to presence of sand under the water table.
- Included most up to date TSL.

Revised by: Doris Gonzalez / Bradly Hessing, FGU

Revised Date: December 15, 2023

PROJECT DESCRIPTION

This project is to design a total replacement structure for S.N. 052-0041. The current structure is located on Town Hall Road (TR 230) over the south drainage ditch of US Route 30, 1.5 miles west of IL 251 in Lee County, Illinois. The reasons for the proposed structure replacement are the age of structure, that the concrete deck slab was rated in poor condition with widespread scaling and substructure was rated in fair condition with both needing repairs, the soffits under the curbs are in an advanced state of deterioration, and the existing bridge rail configuration creates a potential hazard for the traffic on US Route 30. Additionally, there is significant leaching observed on the underside at the abutment-slab interface and at the wingwalls. The Bridge Condition Report has recommended complete replacement of the structure.

The existing structure was constructed in 1938 and is a single span reinforced concrete slab superstructure 15" thick with no bituminous concrete overlay. The abutments are reinforced concrete closed construction on untreated timber piles. The structure length is 28'-0" back-to-back of abutments. The out-to-out deck slab width is 33'-0". The structure is constructed perpendicular to US Route 30 on a 0% grade.

The proposed structure is a three-sided precast concrete culvert. This structure is located in an area that is known to be very swampy. A pile supported structure will be recommended due to the poor soil conditions. The plan layout of the proposed structure, R.O.W., and utilities are shown in the attached Preliminary Plan and Profile. The existing ground contours are shown on the attached Topographic Plan. The proposed structure is planned to be constructed under a road closure.

The existing structure is located just adjacent to US Route 30. The existing rails on the structure result in a potential hazard for traffic on US Route 30. The proposed structure will need to be relocated approximately 34 feet south and further away from US Route 30 to be outside the clear zone requirements for US Route 30. The wingwalls of a 3-sided precast structure and the rails for a single span bridge both are potential hazards for US Route 30 traffic.

GENERAL SUBSURFACE CONDITIONS

Based on the USDA "Soil Survey of Lee County, Illinois", the mapped soil association within the bridge site is designated "Hartsburg." This association for soil is described as a silt loam and silty clay loam to a depth of 5 feet. The Soil Survey further defines the soil as being subject to severe ponding and flooding.

Two soil borings were made available to Maurer-Stutz, Inc. for use in preparing this report. The borings were taken in August 2005 and were completed by IDOT drilling crews. The approximate locations of the borings are shown on the attached Preliminary Plans and Profile sheet. The soil strata encountered at each boring location is shown in the attached Boring Logs and Soil Profile sheet.

The streambed elevation is approximately 754, and the ground surface is at approximately 765 in elevation. From the two boring logs, it was noted that there is some consistency between the two borings. The information from the two borings will be blended together, with heavier consideration given to Boring B-1a since it is closer to the location of the new structure. Boring B-1a also appears to be more conservative for use in the design of the pile foundations.

Both soil borings indicate that the soil starting at the ground surface and extending down to approximately Elevation 754 is a medium to stiff silty loam/ silty clay loam mixture. N-values from the standard penetrometer test vary from 4 to 11 blows per foot, and unconfined compressive strength test results range from 0.5 to 1.5 tons per square foot (tsf). Moisture contents range from 21 to 35 percent.

Both soil borings indicate that below this Elevation of 754 extending to Elevation 745 in Boring B-1a and to Elevation 750.4 in Boring B-2a lies a layer of soft to medium silt/ silty loam. N-values from the standard penetrometer test range from 5 to7 blows per foot, and unconfined compressive strength test results range from 0.3 to 0.8 tsf. Moisture contents range from 25 to 32 percent.

Boring B-1a indicates that the soil between elevation 720 and 745 is primarily a medium to dense, fine sand with N-values from the standard penetrometer test varying from 11 to 35 blows per foot. Boring B-2a indicates that the soil between elevations 735.4 and 750.4 and between elevations 720.4 and 727.9 is primarily a medium to dense, fine with N-values from the standard penetrometer test ranging from 11 to 42 blows per foot. Boring B-2a indicates that the soil between elevations 727.9 and 735.4 is a stiff to very stiff silty clay till with N-values from the standard penetrometer test ranging from 18 to 27 blows per foot, unconfined compressive strength test results ranging from 1.4 to 2.7 tsf, and moisture contents ranging from 11 to 15 percent.

The soil between elevations 712 and 720 on Boring B-1a is a medium silty clay till with N-values from the standard penetrometer test ranging from 7 to 9 blows per foot, unconfined compressive test results ranging from 0.6 to 0.8 tsf, and moisture contents ranging from 14 to 15 percent. The soil between elevations 711 and 720.4 on Boring B-2a is a medium to very stiff silty clay loam till with N-values from a standard penetrometer test ranging from 6 to 19 blows per foot, unconfined compressive strength test results ranging from 0.7 to 2.3 tsf, and moisture contents ranging from 12 to 16 percent.

Both soil borings indicate that the soil between elevations 702 and approximately 712 is a medium to stiff silt/ silty loam mixture with some organics. This silt/ silty loam layer has N-values from the standard penetrometer test ranging from 8 to 33 blows per foot, unconfined compressive strength test results ranging from 0.8 to 2.0 tsf, and moisture contents ranging from 21 to 113 percent.

The soil between elevations 680 and 702 on Boring B-1a, and elevations 685.4 and 702 on Boring B-2a is a medium to very stiff silty clay loam till. N-values from the standard penetrometer test vary from 6 to 33 blows per foot, and the unconfined compressive strength test results range from 0.5 to 3.5 tsf. Moisture contents range from 10 to 23 percent.

Boring B-1a indicates that below elevation 680 to the extent of the boring the soil is a very loose to dense, fine sand with N-values from the standard penetrometer test vary from 3 to 32 blows per foot. Boring B-2a indicates that below elevation 685.4 to the extent of the boring the soil is a medium to very dense, fine sand with N-values from the standard penetrometer test vary from 15 to 55 blows per foot.

Groundwater was first encountered during drilling at an elevation of 744.6 on Boring B-1a, and an elevation of 749.9 on Boring B-2a, which in both cases is approximately at the top of the sand layer. The groundwater elevation after 24 hours after drilling was recorded at elevation 717.6 on Boring B-1a, and the groundwater elevation after 72 hours after drilling was recorded at elevation 751.9 on Boring B-2a. The stream bed elevation is approximately 754. Based on the information provided in the soil borings, it is estimated that the groundwater table is approximately at elevation 752. The groundwater level at the site may fluctuate due to the slope of the natural ground, seasonal variations, and other considerations that may not have been evident at the time the borings were drilled. The water elevation in the drainage ditch may fluctuate with the seasons and with recent amounts of rainfall or melting snow.

GEOTECHNICAL EVALUATIONS

Settlement.

The existing structure is a 28'-0" long single-span bridge on timber pile-supported abutments. The proposed structure will be a pile-supported, 3-sided precast concrete structure with a span approximately the same as existing. A pile-supported structure is planned for this location due to the swampy

conditions, the presence of a high water table, and the presence of soft silt and a thick layer of saturated silt and sand below the streambed elevation which has significant settlement potential for supporting spread footings. The profile grade of the roadway is planned to be raised a maximum of approximately 1.5 feet, and the drainage ditch will need to be regraded and relocated for the new structure to be located 34 feet south of its current location.

The new piles supporting the proposed structure will be driven into the very stiff silty clay loam till layer or dense sand layer, which will result in a minimal settlement of the proposed structure. Therefore, settlement of piles will be insignificant and not a factor in the design or performance of the new pile-supported structure.

The embankment on either side of the drainage ditch will be filled in on the north side and cut back on the south side at 2:1 slopes for the relocation of the structure 34 feet to the south. An additional surcharge on the existing ground surface will result from the placement of new embankment within the drainage ditch adjacent to the culvert and behind the wingwalls. An adequate safety factor was found for the allowable bearing pressure of the silt layer below the streambed to support the new embankment fill.

Approximately the top 23 feet of soil below the streambed elevation is the limited depth of soil that will have a significant increase in vertical pressure over the existing overburden due to the placement of the new embankment in the ditch. The soil between approximately elevations 720 and 745 is a medium, fine sand. The potential settlement in this sand layer will occur primarily as the embankment is placed and should not be of concern for the long term performance of the embankment. The soil within the top 9 feet below the streambed elevation of 754 is a soft to medium silt/ silty loam soil mixture with high water contents ranging from 25 to 35 percent. Settlement within the new embankment soil is expected to be minimal, if it is constructed according to the proper compaction requirements as given in the Standard Specifications. The discussion on settlement for the embankment will be regarding the compressibility of the existing natural soils.

The settlement was estimated using the procedure outlined in IDOT geotechnical Manual (1999), for the silt/ silty loam layer below the streambed due to the placement of the new embankment representing the worst case scenario. The largest addition of soil surcharge from embankment fill is at the existing drainage ditch where the new soil height is at its greatest. This silt/ silty loam layer is considered to be the highest contributor to the potential settlement over time of the embankment due to its proximity to the applied load and its high water content. The settlement at the existing drainage ditch due to the placement of new embankment was estimated between 2 and 3 inches. With the limited information on the soil that was provided in the soil borings, it is estimated that this settlement may occur within a period of three to six months. Consolidation test data is needed to perform a more accurate settlement analysis and to more accurately estimate the time for settlement to occur.

Mitigation of this settlement could be accomplished by removal and replacement of the saturated silt material; however, the layer is approximately 9 feet deep and would require some temporary shoring during the construction process, particularly due to the short distance between the drainage ditch and US Route 30 pavement. Another option is to place the embankment in and around the existing drainage ditch to try to get the majority of the settlement to occur prior to the construction of the roadway above; however, the proposed structure will be constructed under road closure and traffic detour conditions which would require the road to be closed for a much longer period of time. Wick drains or a sand blanket may be used to accelerate the settlement, but not reduce the amount of settlement. The use of wick drains requires more information about the soil, and sand blankets are most often used in conjunction with preloading the embankment. The injection of a cement or grout may increase the strength of the silt layer; however, containment within the relatively small area that the embankment is being placed may be a problem with no horizontal boundary within the natural soil and given that a 25-foot-thick granular soil is below the silt layer. Of all the options listed above, it appears that preloading of the existing ditch area with new embankment material for a given amount of time prior to final construction of the roadway is the most reasonable and cost effective option.

The FGU recommends that the new embankment fill on the North side of the drainage ditch be placed as soon as possible (prior to construction) to allow soils to settle and ensure that the majority of the settlement occurs during construction. Where new embankment is placed, settlement is expected to occur in the 9-foot-thick layer of silt below the streambed, with the majority of the settlement occurring during the proposed pre-loading period. All proposed piles for are planned to be located completely south of the existing drainage ditch, except for the piles supporting the north wingwalls. All proposed piles located completely south of the existing drainage ditch are not expected to have significant settlement of adjacent soil and will not be subject to potential downdrag forces.

Piles that will support the north wingwalls will be located within the existing drainage ditch. Settlement of soil adjacent to piles as small as 0.4" can create downdrag forces on the piles. The tops of the piles will be at approximately elevation 750, so the piles below the north wingwalls will be subject to downdrag forces due to potential settlement in the saturated silt layer of soil from placement of new embankment. Downdrag effects are expected to be minimal and have been accounted for in the Design Pile Tables. If the saturated silt layer of soil is removed at the pile locations and replaced with a compacted granular soil, it would not be necessary to reduce pile capacities for the downdrag forces.

Slope Stability.

The existing drainage ditch will be filled in with new embankment, and new 2:1 side slopes will form the relocated ditch to accommodate the relocation of the structure 34 feet to the south. Also new embankment will be placed behind the wingwalls if the culvert option is chosen. The existing soil in this embankment area varies from a medium to stiff silty loam/ silty clay loam mixture. The vertical height between the ground surface and the streambed elevation is approximately 11 feet at its maximum, which is relatively small. Slope stability problems were not noted in the existing site conditions. Slope stability is not expected to be a factor in the design or performance of the new pile-supported structure.

The rule of thumb analysis given in the IDOT Geotechnical Manual (1999) was performed for the new fill slopes surrounding the culvert and on the north side of the existing drainage ditch using the Terzaghi's bearing capacity equation to determine base stability. The results of the conservative base stability analysis had acceptable safety factors of approximately 2.4, assuming that soil similar to the existing embankment soil will be used to form the new embankment. The height of the new embankment fill at the structure will be placed at a steepest slope of approximately 2:1 for the bridge option, and with flatter slopes for the three-sided culvert option. The XStabl program was also run for a slope stability analysis of the new embankment slopes for both the bridge and culvert options. The minimum factor of safety result from the XStabl analyses was 3.5. The new embankment slopes are considered safe for slope stability.

Seismic Considerations.

The project site is located in western Lee County, Illinois. In accordance with the AASHTO Standard Specification for Highway Bridges, a Seismic Site Class equal to D and spectral accelerations SD1 and SDS corresponding to 0.089g and 0.155g, respectively, should be utilized for design. These values lead to a Seismic Performance Zone of 1 in accordance with the AASHTO Standard Specifications procedure.

Boring B-1a indicates that an approximately 25 foot thick layer of sand with the lower bound at approximately elevation 720 exists below the streambed at the proposed structure location, and sand exists below approximately elevation 680 to the extent of the boring. These layers of sand are below the groundwater table elevation. The potential for liquefaction to occur exists within these sand layers. The potential for liquefaction to occur decreases with an increase in depth of the layer and with an increase in the density of the layer.

Despite the liquefaction potential of both layers of sand that exist below the proposed structure, there is a very low probability that a seismic event will occur at the location of the structure. The safety risk to the

traveling public at this pile-supported proposed structure is low in the unlikely event of a seismic occurrence. Therefore, the potential for liquefaction to occur is considered small, and liquefaction should not be a factor in the design of the pile foundations for either structure option.

Scour.

No evidence of scour or channel migration was visible at the site of the structure. The drainage ditch forming the waterway channel and its protection were rated in good condition with minor problems on the IDOT Master Structure Report.

A scour analysis for the proposed structure provided by the District in November 2023 reflected a total scour depth equal to 15.8 ft. According to this analysis, a flood frequency of 86 years will be utilized to calculate the Design and Check scour elevations. Riprap will be used for slope and channel protection in the area of the new structure. Design scour elevations are provided in the Table below indicating the elevation for tolerable soil loss while maintaining the structural integrity of either structure.

Table 1: Design Scour Elevations

Event/Limit State	Design Scour Elevations (ft.)		Item 113
	N. Abut.	S. Abut.	
Q100	737.1	737.1	5
Q200	737.1	737.1	
Design	737.1	737.1	
Check	737.1	737.1	

Mining Activity.

According to ISGS records, Lee County has no record of mining that has occurred.

FOUNDATION EVALUATIONS AND DESIGN RECOMMENDATIONS

It is recommended that the stream banks within the channel realignment locations on the upstream side of the proposed structure be armored with riprap to reduce potential erosion on the newly formed stream bank surfaces. It is also recommended that the remainder of the stream banks be armored with an appropriate turf reinforcement mat.

Due to the high water table elevation and the presence of loose silt and granular soils at the location of the proposed structure, it is recommended that construction of any new hard road surface not occur until the new embankment fill on the north side of the structure has been in place for a minimum of six months to allow for the majority of potential new settlement to occur. IDOT District Two has agreed with this recommendation for preloading the existing soils with the new embankment and has provided the recommendation for the six month time frame. It is also recommended that a two-foot-thick layer of breaker run rock be provided as a working platform for construction of the new embankment within the existing channel.

The proposed three-sided precast concrete culvert, if chosen, is planned to be supported on two lines of piles for each concrete pile cap below each wall and wingwall to resist horizontal loadings. Drilled shafts are not seen as necessary and would be less economical than driven piles. Spread footings are not as

desirable and have the potential for significant settlement on saturated sand soil in a swampy area with a high water table elevation.

Based on the loads, the subsurface data, and the type of pile cap below the three-sided culvert walls planned for use, driven piling appears to be the appropriate foundation to support the proposed structure. Given the loads and the subsurface data, Metal Shell piles appear to be the most appropriate pile type for the structure foundation. Friction piles should be used due to the fact that the borings do not indicate a soil layer with sufficient stiffness to provide significant end bearing for the piles. Based on the information provided in the soil borings, some layers of soil were described as dense or very stiff and could cause some damage to the metal shell piles. The borings indicate that there is a relatively thin layer of dense sand beginning at approximately elevation 738, and that below approximately elevation 687 the soil becomes a very stiff silty clay loam till, which may be too stiff or dense to drive the metal shell piles through without damage. It is recommended that pile shoes be used for the metal shell piles or the steel H-Piles.

The three-sided precast concrete culvert had preliminary service load estimates per culvert wall of 12.5 kips per foot of culvert of vertical force and 2.5 kips per foot of culvert of horizontal outward thrust force due to gravity loads.

The following Tables 2 and 3 show estimated pile lengths for metal shell piles. The estimated pile lengths are given for each pile size for various values of LRFD Factored Resistance Available and their corresponding Nominal Required Bearings. The results of the pile analysis indicate that the vertical load capacity for the metal shell piles is limited by the depth it can be driven until very stiff soil is encountered. The values on Table 3 have been provided with downdrag forces applied to the piles supporting the north wingwalls, which are intended for piles located within the existing drainage ditch. If the silt layer below the streambed is removed and replaced with a compacted granular soil, the pile capacities would not need to be reduced for the downdrag forces.

Table 2: Pile Design Table (No Downdrag)

Pile Section	Nominal Required Bearing (Kips)	Factored Resistance Available (Kips)	Estimated Length (ft.)
Metal Shell 12” dia. w/.25” walls	206	113	41
	252	139	51
	296	163	61
	392	216	73
Metal Shell 14” dia. w/.25” walls	243	134	41
	297	164	51
	348	192	61
	459	252	73
Metal Shell 14” dia. w/.312” walls	243	134	41
	297	164	51
	348	192	61
	570	314	79
Metal Shell 16” dia. w/.312 walls	280	154	41
	344	189	51
	401	221	61
	500	275	71
	654	359	80

Table 3: Pile Design Table (With Downdrag)

Pile Section	Nominal Required Bearing (Kips)	Factored Resistance Available (Kips)	Estimated Length (ft.)
Metal Shell 12" dia. w/.25" walls	206	102	41
	252	128	51
	296	152	61
	392	205	73
Metal Shell 14" dia. w/.25" walls	243	121	41
	297	151	51
	348	179	61
	459	239	73
Metal Shell 14" dia. w/.312" walls	243	121	41
	297	151	51
	348	179	61
	570	301	79
Metal Shell 16" dia. w/.312 walls	280	139	41
	344	174	51
	401	206	61
	500	260	71
	654	345	80

It is recommended that a total of two test piles be driven, one at each abutment or one below each wall of the three-sided precast culvert. All test piles are to be driven to 110 percent of the NRB value that is provided on the bridge plans for the pile design used, in accordance with IDOT policy.

The pile group capacity may be designed as the sum of the Factored Resistance Available for individual piles as long as a spacing of at least three pile widths is maintained between piles, measured center to center.

The three-sided precast culvert will have significant lateral loads applied to the piles in addition to the vertical loads. Lateral load resistance and resulting lateral deflection are typically assessed using computer models based on the lateral modulus of subgrade reaction and considering pile-soil interaction. Common types of soil between the two borings were grouped together, with average test results within each layer used to obtain design values for the soil strata.

According to the AllPile, Version 7 program, pile fixity for the 12" diameter metal shell piles occurs at approximately 7 feet below the top of pile, and at approximately 9 feet below the top of steel H-Piles using a lateral load of 11 kips per pile. Therefore, pile fixity for lateral loads will not control the embedment depth for the piles. According to the AllPile, Version 7 program, the design values in the following Table 3 are recommended. The modulus of subgrade reaction value k describes the increase in the modulus of elasticity of the soil with depth and is not the same as the coefficient of lateral subgrade reaction. The soil strain e50 is the strain at which 50% of the undrained shear strength is developed in a compression test.

Table 4: Lateral Loading Analysis Parameters

Elevation Boundaries of Soil Layers	Soil Type	Modulus of Subgrade Reaction k (psi)	E50	Relative Density Dr
745 to 751	Soft to Med. Silt/ Silty Loam	133	0.0120	N/A
720 to 745	Medium, Fine Sand	60	N/A	50%
712 to 720	Med. Silty Clay Till	130	0.0120	N/A
702 to 712	Med. to Stiff Silt/ Silty Loam	340	0.0084	N/A
680 to 702	Med. to Very Stiff Silty Clay Loam Till	450	0.0075	N/A

The pile group capacity may be designed as the sum of the available lateral resistances for individual piles as long as a spacing of at least three pile widths is maintained between piles, measured center to center.

The typical recommended lateral soil pressures given in the IDOT Culvert Manual (2000) appear to be appropriate for the design of the wingwalls and the side walls of the culvert. The typical design for wingwalls uses an equivalent fluid pressure of 40 pounds per cubic foot for level fills and an increased equivalent fluid pressure with an increase in fill backslope, given that the backfill around the wingwalls will be placed in accordance with IDOT Standard Specifications. Weep holes in accordance with IDOT standards shall be used to relieve hydrostatic pressure behind the walls. The typical design for the culvert side walls uses an equivalent fluid pressure of 40 pounds per cubic foot for the fill above the culvert and 50 pounds per cubic foot for the height of the culvert walls.

CONSTRUCTION CONSIDERATIONS

The proposed structure will be constructed under road closure conditions. The proposed structure will be located approximately 34 feet south of the existing structure and will require placement of new embankment to reshape and relocate the drainage ditch. Temporary Sheet Piling does not appear to be necessary for the construction of the proposed structure.

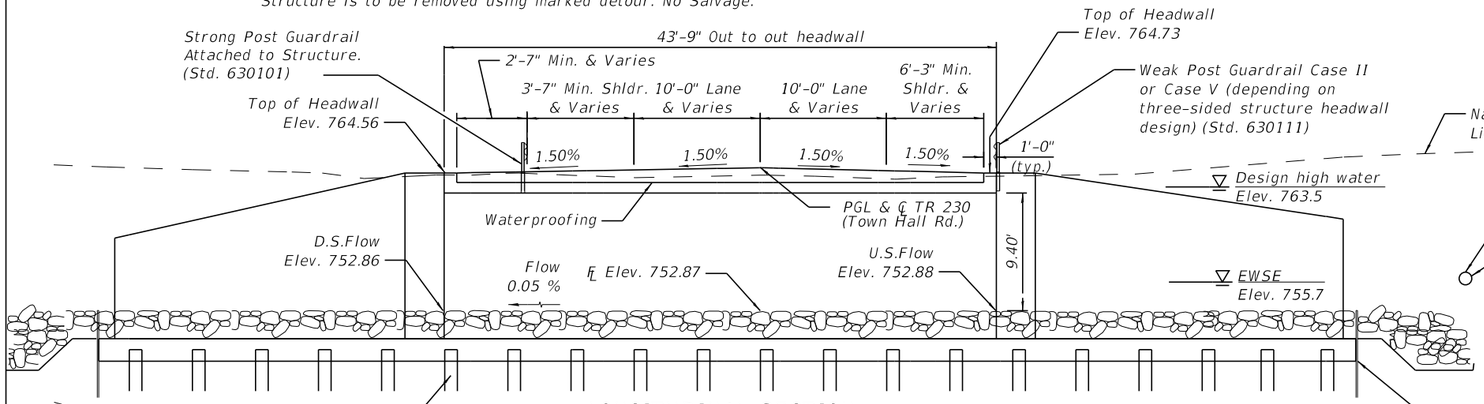
Due to the presence of sand under the water table in the area of the proposed structure, the use of a Type 2 Cofferdam with a seal coat may be required for the construction of the pile caps for the culvert walls and for the footings for the wingwalls for the culvert option.

There are power lines running parallel to and on the west side of TR 230. A power pole is located near the southwest corner of the proposed structure. Nothing overhead was observed that would potentially impact the driving of the piling for the proposed structure. The southwest wingwall of the proposed three-sided precast culvert will extend under the existing power pole, and the northwest wingwall will extend under the power lines just west of TR 230 road location. The power pole and power lines will need to be relocated temporarily during construction.

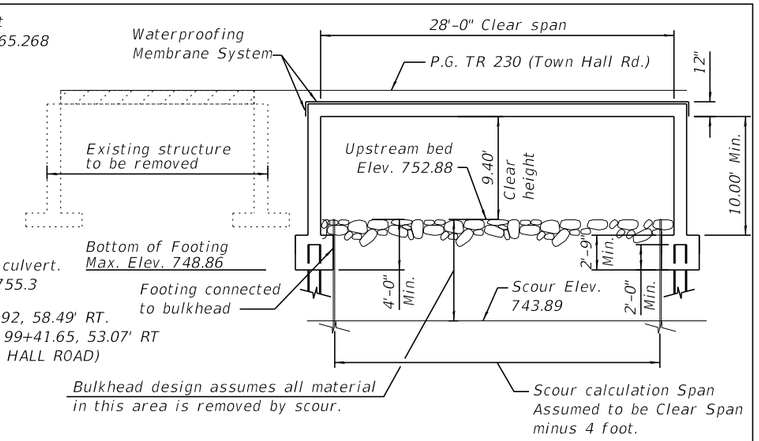
The proposed piling will be located approximately 34 feet south of the existing abutments, so the proposed piles under the north wall of the culvert will be located just south of the existing south abutment pile locations. The designer of the proposed structure should make sure that the proposed piles for the north wall of the culvert are far enough south of the existing piles for the south abutment of the bridge to not cause interference.

EXISTING STRUCTURE: SN 052-0041 single span R.C. slab bridge, 28 ft. back to back of closed R.C. abutments supported on timber piles. Bridge slab is 33'-1" wide. Built in 1938 as F.A. Rte 141, Section 114 B-1. Structure is to be removed using marked detour. No Salvage.

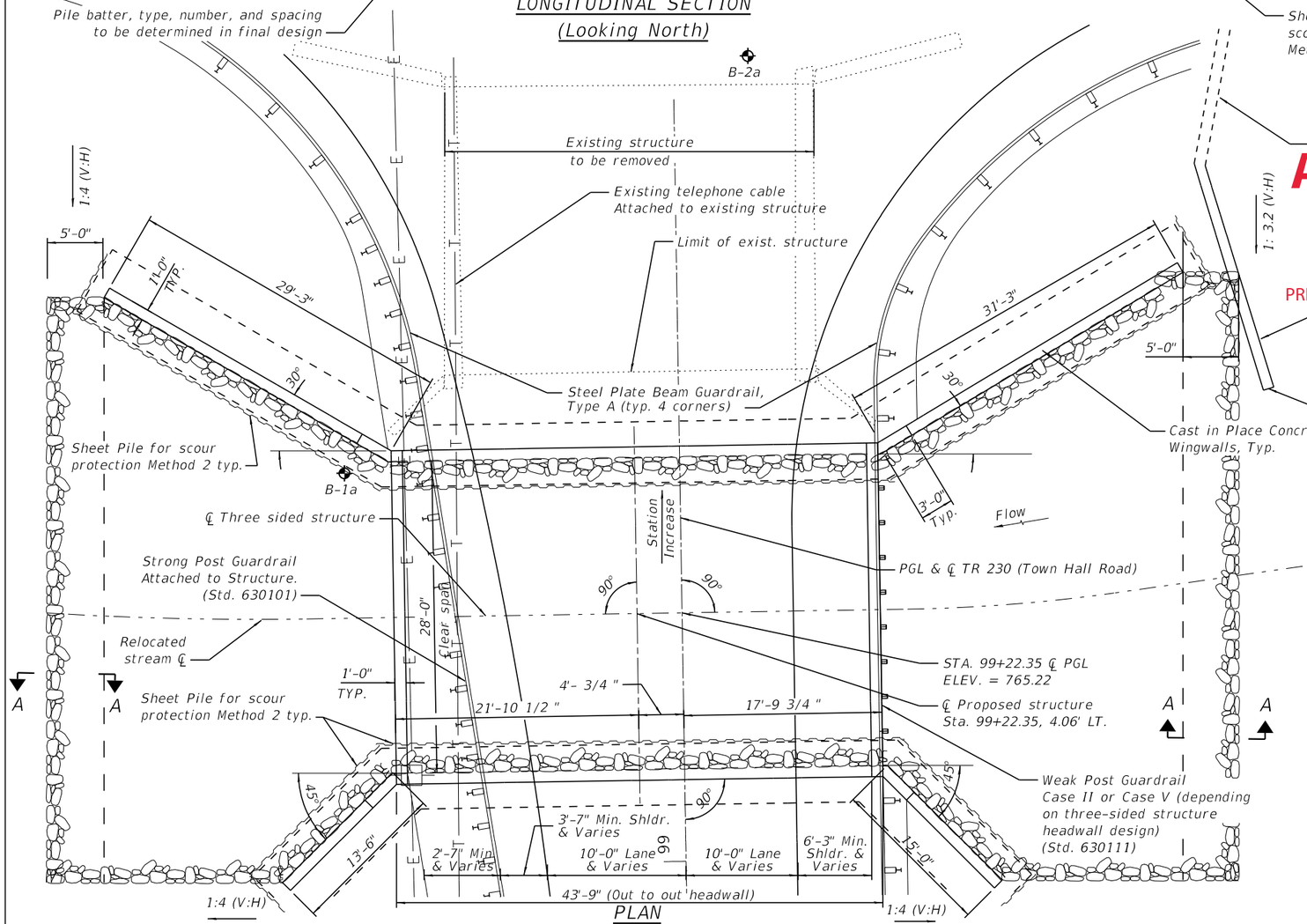
BENCHMARK: BM 402 chiseled square on top of concrete wingwall at southeast corner of existing SN052-0041. TBM Elev. 765.268



LONGITUDINAL SECTION
(Looking North)



SECTION THROUGH STRUCTURE
(Looking East)



PLAN

APPROVED
DECEMBER 06, 2023
AS A BASIS FOR
PREPARATION OF DETAILED PLANS

NOTES:

1. A Closed bottom structure is not allowed.
2. Sheet pile for scour protection Method 2 is shown.
3. Slab & wall thickness, shape, cofferdam, wingwall type and foundations may vary as per manufacturer.
4. A Type-2 cofferdam will be required for the construction of a cast-in-place footing.
5. The existing overhead utility on west side will be relocated by others.
6. Existing telephone cable attached to the structure is to be relocated by others.

HIGHWAY CLASSIFICATION

F.A.P. 573, TR230 (Town Hall Road)
Functional Class : Local Road
ADT: 75 (2024); 100 (2044)
ADTT: 10 (2024); 13 (2044)
DHV: 10 (2044)
Design Speed: 35 m.p.h
Posted Speed: none
Two-Way Traffic Directional Distribution = 50/50

DESIGN SPECIFICATIONS

2020 AASHTO LRFD Bridge Design Specifications, 9th Edition

LOADING HL-93

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

DESIGN STRESSES

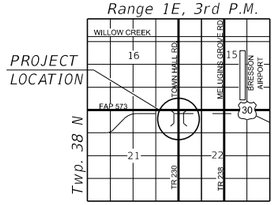
FIELD UNITS
f'c = 3,500 psi
fy = 60,000 psi (Reinforcement)

PRECAST UNITS
f'c = 5,000 psi (Minimum)
fy = 60,000 psi (Reinforcement)

SEISMIC DATA

Seismic Site Class D
SPZ = 1
SDS = 0.155g
SD1 = 0.089g

Range 1E, 3rd P.M.



LOCATION SKETCH

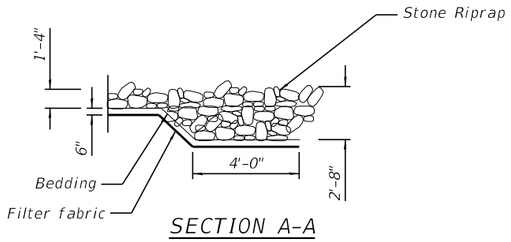
GENERAL PLAN AND ELEVATION
TR 230 (TOWN HALL ROAD) OVER UNNAMED DRAINAGE DITCH
TR 230/238 - SECTION (114-1) BR-2
LEE COUNTY
STA. 99+22.35
STRUCTURE NUMBER 052-0077

MW Midwest Engineering Associates, Inc. DESIGN FIRM No. 184-005896	USER NAME =	DESIGNED - PJL	REVISED -
		CHECKED -	REVISED -
	PLOT SCALE =	DRAWN - FUH	REVISED -
	PLOT DATE = 12/6/2023	CHECKED - PJL	REVISED -

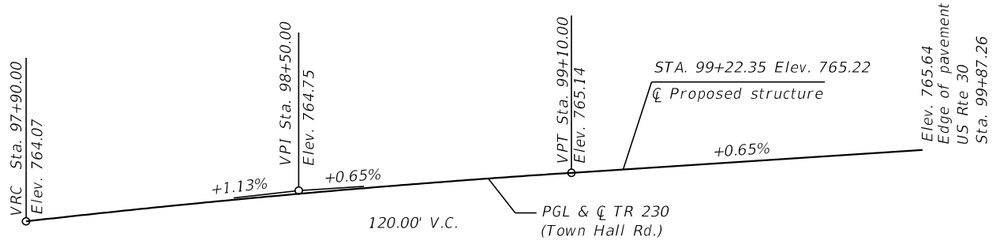
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN
STRUCTURE NO. 052-0077
SHEET NO. 1 OF 2 SHEETS

TR RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
230/238	(114-1) BR-2	LEE	151	51
STRUCTURE NO. 052-0077		CONTRACT NO. 64B39		
	ILLINOIS FED. AID PROJECT			



SECTION A-A



PROFILE GRADE

WATERWAY INFORMATION TABLE

Existing Low EOP Elevation: 764.88 ft. @ Sta. 99+18

Drainage Area = 2.97 sq. mi. Proposed Low EOP Elevation: 765.03 ft. @ Sta. 98+86

Flood	Frequency Year	Discharge cfs	Waterway Opening (sq ft)		Natural H.W.E.	Head (ft)		Headwater Elev. (ft)	
			Exist	Prop		Exist	Prop	Exist	Prop
Ten-Year	10	373	170	233	761.6	0.0	0.0	761.6	761.6
Design	50	613	217	234	763.5	0.1	0.0	763.6	763.5
Channel Full	57	650	217	234	763.8	0.1	0.0	763.9	763.8
Max	86	713	217	234	764.3	0.1	0.0	764.4	764.3
100-Year	100	727	217	234	764.3	0.1	0.0	764.4	764.3
200-Year	200	798	217	234	764.3	0.1	0.0	764.4	764.3

10-Year Velocity through Existing Structure = 2.2 fps 10-Year Velocity through Proposed Structure = 1.7 fps

DESIGN SCOUR ELEVATION TABLE

Event / Limit State	Design Scour Elevations (ft.)		Item 113
	N. Abut.	S. Abut.	
Q100	737.1	737.1	5
Q200	737.1	737.1	
Design	737.1	737.1	
Check	737.1	737.1	

APPROVED

DECEMBER 06, 2023

AS A BASIS FOR
PREPARATION OF DETAILED PLANS

DETAILS
TR 230 (TOWN HALL ROAD) OVER UNNAMED DRAINAGE DITCH
F.A.P. 573 - SECTION (114-1) BR-2
LEE COUNTY
STA. 99+22.35
STRUCTURE NUMBER 052-0077

FILE NAME =	USER NAME =	DESIGNED -	REVISED -
MW Midwest Engineering Associates, Inc. DESIGN FIRM No. 184-005896		CHECKED -	REVISED -
	PLOT SCALE =	DRAWN -	REVISED -
	PLOT DATE = 12/6/2023	CHECKED -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN
STRUCTURE NO. 052-0077
SHEET NO. 2 OF 2 SHEETS

TR RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
230/238	(114-1) BR-2	LEE	151	52
STRUCTURE NO. 052-0077		CONTRACT NO. 64B39		
ILLINOIS	FED. AID PROJECT			

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Date 8/2/05

ROUTE US 30 DESCRIPTION P92-102-05 Bridge - US 30 at Townhall Road, 1.5 m. W. of IL 251 LOGGED BY W. Garza

SECTION _____ LOCATION Viola Twp. - 21 NE, SEC. , TWP. 38N, RNG. 1E

COUNTY Lee DRILLING METHOD Hollow Stem Auger HAMMER TYPE B-53 Diedrich Automatic

STRUCT. NO. _____
Station 79+31 - 43' Lt.

BORING NO. B-1a
Station 79+54
Offset 65.00ft Lt US30 CL
Ground Surface Elev. 99.5 ft

Surface Water Elev. Dry ft
Stream Bed Elev. 89.0 ft

Groundwater Elev.:
First Encounter 79.5 ft
Upon Completion Wash ft
After 24 Hrs. 52.5 ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
		1.0 P	21	MEDIUM/STIFF dark brown SILTY CLAY LOAM
97.00				
	2 4 7	1.1 P	23	STIFF gray/tan SILTY LOAM
95.50				
-5				
	1 3 4	0.8 P	25	MEDIUM tan SILTY LOAM
93.00				
	1 2 2	0.8 P	33	MEDIUM gray SILTY CLAY LOAM
90.50				
-10				
	1 3 3	0.6 B	35	MEDIUM dark gray SILTY CLAY LOAM 117.1 pcf
88.00				
	2 3 4	0.3 B	29	SOFT gray SILT 131.0 pcf
85.50				
-15				
	1 2 3	0.7 B	32	MEDIUM gray SILT 135.2 pcf
83.00				
	2 2 4	0.8 B	25	MEDIUM dark gray SILTY LOAM
80.00				
-20				

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
	1 5 8			MEDIUM gray fine SAND
78.00				
	5 8 12			MEDIUM gray clean medium coarse SAND
75.50				
-25				
	9 9 18			MEDIUM gray fine SAND
73.00				
	5 12 23			DENSE gray fine SAND
70.50				
-30				
	12 7 9			Wash MEDIUM gray fine SAND
68.00				
	8 13 16			MEDIUM gray fine SAND with SILT lens
65.00				
-35				
	5 9 12	2.1 S	14	VERY STIFF gray SILTY TILL 175.7 pcf
62.50				
	10 11 15			MEDIUM gray fine SAND
60.50				
-40				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Date 8/2/05

ROUTE US 30 DESCRIPTION P92-102-05 Bridge - US 30 at Townhall Road, 1.5 m. W. of IL 251 LOGGED BY W. Garza

SECTION _____ LOCATION Viola Twp. - 21 NE, SEC. , TWP. 38N, RNG. 1E

COUNTY Lee DRILLING METHOD Hollow Stem Auger HAMMER TYPE B-53 Diedrich Automatic

STRUCT. NO. _____
Station 79+31 - 43' Lt.

BORING NO. B-1a
Station 79+54
Offset 65.00ft Lt US30 CL
Ground Surface Elev. 99.5 ft

Surface Water Elev. Dry ft
Stream Bed Elev. 89.0 ft

Groundwater Elev.:
First Encounter 79.5 ft ▼
Upon Completion Wash ft
After 24 Hrs. 52.5 ft ▽

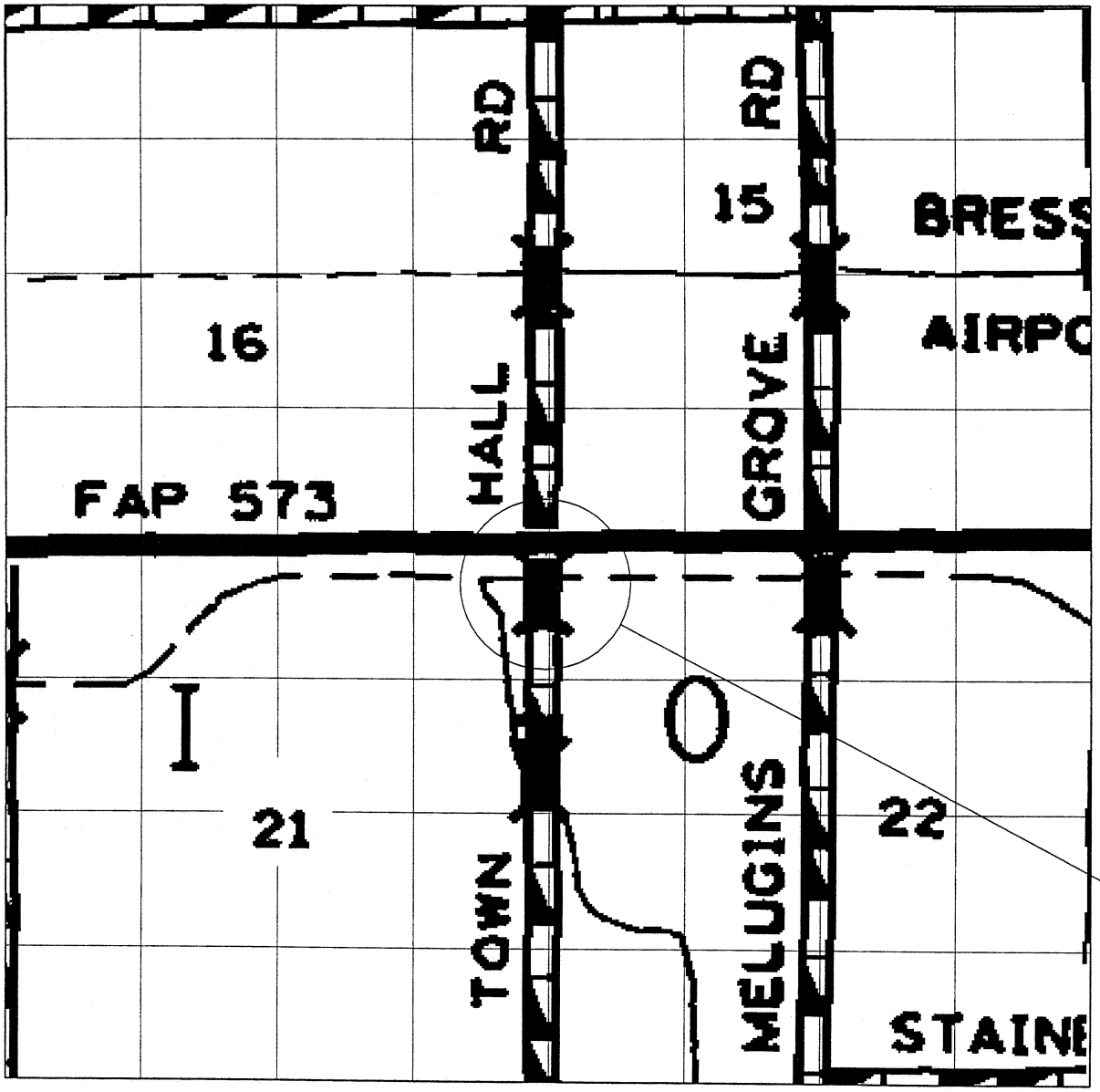
DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
	7 10 12			MEDIUM gray dirty SAND & GRAVEL
58.00				
	3 5 6			Wash MEDIUM gray dirty SAND with medium GRAVEL
55.00				
-45				
	1 3 5	0.8 B	14	MEDIUM gray SILTY CLAY TILL 174.7 pcf
53.00				
▽				
	3 3 4	0.6 B	14	MEDIUM gray SILTY CLAY TILL 174.7 pcf
50.50				
-50				
	2 3 6	0.6 P	15	MEDIUM gray SILTY CLAY TILL
48.00				
	1 6 9	1.0 B	21	MEDIUM/STIFF gray SILT 161.9 pcf
45.50				
-55				
	5 4 4	1.3 S	22	Wash STIFF gray SILT 143.8 pcf
43.00				
	3 7 10	0.8 B	29	MEDIUM dark brown SILTY LOAM with ORGANICS 148.0 pcf
40.50				
-60				

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
	4 8 11	1.1 P	80	STIFF dark brown ORGANICS with SILTY LOAM 31% ORGANICS
38.00				
	4 6 9	1.8 B	20	STIFF gray SILTY CLAY TILL 138.4 pcf
35.50				
-65				
	3 4 5	1.9 B	18	STIFF gray SILTY CLAY TILL 134.2 pcf
33.00				
	3 6 7	0.8 B	12	MEDIUM gray SILTY CLAY TILL 157.6 pcf
30.50				
-70				
	2 6 8	1.5 B	12	STIFF gray SILTY CLAY TILL 159.7 pcf
28.00				
	2 6 12	2.1 B	12	VERY STIFF gray SILTY CLAY TILL 166.0 pcf
25.50				
-75				
	6 8 16	1.5 P	14	STIFF gray SILTY CLAY TILL
23.00				
	10 14 19	2.7 B	13	VERY STIFF gray SILTY CLAY LOAM TILL 161.9 pcf
20.50				
-80				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

R 1 E - 3rd P.M.

T 38 N



N

Proposed Structure

LOCATION SKETCH

...\23705002\CADD\052-0077.dgn 4/8/2008 2:58:19 PM

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Date 8/2/05

ROUTE US 30 DESCRIPTION P92-102-05 Bridge - US 30 at Townhall Road, 1.5 m. W. of IL 251 LOGGED BY W. Garza

SECTION _____ LOCATION Viola Twp. - 21 NE, SEC. , TWP. 38N, RNG. 1E

COUNTY Lee DRILLING METHOD Hollow Stem Auger HAMMER TYPE B-53 Diedrich Automatic

STRUCT. NO. _____
Station 79+31 - 43' Lt.

BORING NO. B-1a
Station 79+54
Offset 65.00ft Lt US30 CL
Ground Surface Elev. 99.5 ft

Surface Water Elev. Dry ft
Stream Bed Elev. 89.0 ft

Groundwater Elev.:
First Encounter 79.5 ft
Upon Completion Wash ft
After 24 Hrs. 52.5 ft

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
VERY STIFF gray SILTY CLAY LOAM TILL 142.7 pcf		7 9 17	3.5 B	12
	18.00			
VERY STIFF gray SILTY CLAY LOAM TILL		10 14 17	3.5 P	13
	15.00			
	-85			
VERY LOOSE gray fine SAND		2 1 2		
	13.00			
LOOSE gray fine SAND		1 2 7		
	10.50			
	-90			
MEDIUM gray fine SAND		7 8 12		
	8.00			
Wash MEDIUM gray fine SAND		3 5 8		
	5.50			
	-95			
MEDIUM gray fine SAND		7 7 16		
	3.00			
DENSE gray fine SAND with SILT lens		9 16 16		
	0.50			
End of Boring				
	-100			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, from 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Date 8/5/05

ROUTE US 30 DESCRIPTION P92-102-05 Bridge - US 30 at Townhall Road, 1.5 m. W. of IL 251 LOGGED BY W. Garza

SECTION _____ LOCATION Viola Twp. - 21 NE, SEC. , TWP. 38N, RNG. 1E

COUNTY Lee DRILLING METHOD Hollow Stem Auger HAMMER TYPE B-53 Diedrich Automatic

STRUCT. NO. _____
Station 79+31 - 43' Lt.

BORING NO. B-2a
Station 79+34
Offset 24.00ft Lt US 30 CL
Ground Surface Elev. 99.8 ft

Surface Water Elev. Dry ft
Stream Bed Elev. 89.0 ft

Groundwater Elev.:
First Encounter 84.8 ft ▼
Upon Completion Wash ft
After 72 Hrs. 86.8 ft ▽

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Asphalt and Gravel				
	97.30			
STIFF gray SILTY LOAM		2 3 4	1.5 P	23
	95.80			
	-5			
STIFF gray SILTY CLAY LOAM 120.3 pcf		2 2 4	1.0 B	31
	93.30			
MEDIUM gray SILTY LOAM 123.5 pcf		1 1 3	0.5 B	29
	90.80			
	-10			
MEDIUM gray SILTY CLAY LOAM with SAND lens 120.3 pcf		1 2 3	0.9 B	26
	88.30			
SOFT gray SILT 134.2 pcf ▽		1 2 3	0.3 B	28
	85.30			
	▼-15			
MEDIUM gray fine SAND		1 5 6		
	83.30			
MEDIUM gray dirty medium SAND		6 7 10		
	80.80			
	-20			
MEDIUM gray fine SAND		4 9 12		
	78.30			
MEDIUM gray fine SAND with SILT lens		6 10 15		
	75.30			
	-25			
Wash STIFF gray SILT		9 15 20	2.0 P	21
	72.80			
DENSE gray fine SAND		15 22 20		
	70.30			
	-30			
Wash STIFF gray SILTY CLAY TILL 164.0 pcf		2 6 12	1.4 B	15
	68.30			
VERY STIFF gray SILTY CLAY TILL 171.5 pcf		7 13 14	2.7 B	13
	65.80			
	-35			
STIFF gray SILTY CLAY TILL with fine SAND lens 167.2 pcf		5 9 13	1.7 B	11
	62.80			
MEDIUM gray clean medium coarse GRAVEL		8 10 9		
	60.80			
	-40			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, from 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Date 8/5/05

ROUTE US 30 DESCRIPTION P92-102-05 Bridge - US 30 at Townhall Road, 1.5 m. W. of IL 251 LOGGED BY W. Garza

SECTION _____ LOCATION Viola Twp. - 21 NE, SEC. , TWP. 38N, RNG. 1E

COUNTY Lee DRILLING METHOD Hollow Stem Auger HAMMER TYPE B-53 Diedrich Automatic

STRUCT. NO. _____
Station 79+31 - 43' Lt.

BORING NO. B-2a
Station 79+34
Offset 24.00ft Lt US 30 CL
Ground Surface Elev. 99.8 ft

Surface Water Elev. Dry ft
Stream Bed Elev. 89.0 ft

Groundwater Elev.:
First Encounter 84.8 ft
Upon Completion Wash ft
After 72 Hrs. 86.8 ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
	7			Wash
	9			MEDIUM gray clean medium coarse SAND
58.30	13			
	9			MEDIUM gray fine SAND
	10			
	15			
55.30				
-45				
	8			Wash
	5	1.0	16	STIFF gray SILTY LOAM TILL
53.30	8	B		166.1 pcf
	6			VERY STIFF gray SILTY CLAY
	8	2.3	12	LOAM TILL
50.80	11	B		177.8 pcf
-50				
	1			STIFF gray SILTY CLAY LOAM
	2	1.0	14	TILL
48.30	4	B		155.5 pcf
	2			MEDIUM gray SILTY CLAY LOAM
	4	0.7	14	TILL with fine SAND Lens
45.80	8	B		153.4 pcf
-55				
	3			MEDIUM gray SILT
	6	0.8	22	
43.30	7	P		
	3			STIFF brown ORGANICS
	6	2.0	113	44% ORGANICS
40.80	11	P		
-60				

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
	10			STIFF brown SILTY LOAM with
	17	1.5	55	24% ORGANICS
38.30	16	P		
	4			VERY STIFF gray SILTY CLAY
	5	2.1	19	LOAM TILL
35.80	7	B		139.5 pcf
-65				
	0			MEDIUM gray SILTY CLAY LOAM
	2	0.7	22	TILL
33.30	4	B		132.1 pcf
	1			MEDIUM gray SILTY CLAY LOAM
	3	0.5	23	TILL
30.80	3	B		157.6 pcf
-70				
	2			Wash
	4	1.7	12	STIFF gray SILTY CLAY LOAM
28.30	9	B		TILL
				182.1 pcf
	9			8/8/05
	11	2.9	11	VERY STIFF gray SILTY CLAY
25.80	17	B		LOAM TILL
-75				180.0 pcf
	7			VERY STIFF gray SILTY CLAY
	11	2.5	10	LOAM TILL
23.30	14	S		191.7 pcf
	7			VERY STIFF gray SILTY CLAY
	12	2.2	10	LOAM TILL
	13	S		182.1 pcf
20.30				
-80				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, from 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
IDOT

SOIL BORING LOG

Date 8/5/05

ROUTE US 30 DESCRIPTION P92-102-05 Bridge - US 30 at Townhall Road, 1.5 m. W. of IL 251 LOGGED BY W. Garza

SECTION _____ LOCATION Viola Twp. - 21 NE, SEC. , TWP. 38N, RNG. 1E

COUNTY Lee DRILLING METHOD Hollow Stem Auger HAMMER TYPE B-53 Diedrich Automatic

STRUCT. NO. _____
Station 79+31 - 43' Lt.

BORING NO. B-2a
Station 79+34
Offset 24.00ft Lt US 30 CL
Ground Surface Elev. 99.8 ft

Surface Water Elev. Dry ft
Stream Bed Elev. 89.0 ft

Groundwater Elev.:
First Encounter 84.8 ft ▼
Upon Completion Wash ft
After 72 Hrs. 86.8 ft ▽

	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
DENSE gray dirty SAND & GRAVEL		10 18 25		
	18.30			
MEDIUM gray dirty fine SAND		8 13 15		
	15.80			
	-85			
MEDIUM gray fine SAND		3 6 9		
	13.30			
MEDIUM gray fine SAND		7 8 9		
	10.80			
	-90			
VERY DENSE gray fine SAND		12 21 34		
	8.30			
End of Boring				
	-95			
	-100			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, from 137 (Rev. 8-99)

CONTRACT NO. 64B39

F.A.P RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
573	(114-1)BR-2	LEE		
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

SECTION 21 T38N R1E 3RD PM

EROSION CONTROL LEGEND

- RIPRAP
- — xxx — xxx — xxx — xx — TEMPORARY EROSION CONTROL BARRIER
- TEMPORARY DITCH CHECK

EX 24" CMP TO BE REMOVED

EXISTING APPARENT RIGHT OF WAY

EXISTING POWER POLE TO BE RELOCATED

STA 99+23.00 ℄ PROPOSED S.N. 052-0077

PROPOSED TEMP DITCH CHECK

INA GARLAND

IMPROVEMENTS BEGIN
STA 96+40.00

EXISTING POWER POLE TO BE RELOCATED

T.E.

PROPOSED TEMP DITCH CHECK

PR ROW

PROPOSED RIPRAP, CLASS A4

RUSH CREEK FARMS
C/O RIBORDY & CO.

FAP 573 (US 30)

3048

3049

B-1a

B-2a

STA 99+57
℄ EXISTING
S.N. 052-0041

28'

17'

28'

97+00

98+00

99+00

TR 230 (TOWN HALL ROAD)

20'

2'

2'

STA 3048+37.00 FAP 573 (US 30) =
STA 100+00 TR 230 (TOWN HALL ROAD)

EXISTING APPARENT RIGHT OF WAY

PROPOSED BITUMINOUS PAVEMENT
(THICKNESS TO BE DETEMINED IN PHASE II)

2' PROPOSED AGGREGATE SHOULDER
(THICKNESS TO BE DETERMINED IN PHASE II)

50.0'
TRANSITION TO
EXISTING WIDTH

T.E.

PROPOSED TEMP DITCH CHECK

PROPOSED TEMP DITCH CHECK

PR ROW

EX 12" CMP
W/FLAPGATE

ROBERT L. &
CHARLOTTE M. BRESSON

PROPOSED ℄
CHANNEL REALIGNMENT

EXTEND CULVERT
AND RELOCATE FLAPGATE

EX 24" CMP
TO BE RELOCATED

RUSH CREEK FARMS CORP.

EXISTING APPARENT RIGHT OF WAY

N
0 20' 40'

SECTION 16 T38N R1E 3RD PM

SECTION 15 T38N R1E 3RD PM

SECTION 22 T38N R1E 3RD PM

ex = 0.20'
K = 123
140.00' V.C.

+40.00 EL. 763.56

+80.00 EL. 764.13

VPI STA. 97+10.00
ELEVATION 763.45

-0.16%

+0.97%

VPI STA. 99+10.00
ELEVATION 765.40

+0.97%

+0.21%

765.56

+50.00 EL. 764.82

+70.00 EL. 765.53

ex = -0.11'
K = 157
120.00' V.C.

℄ STRUCTURE

775	770	765	760	755	750	745

763.76 763.70 763.65 763.60 763.54 763.55 763.50 763.56 763.47 763.61 763.43 763.72 763.39 763.88 763.37 764.08 763.35 764.33 763.33 764.57 763.38 764.82 763.65 765.04 764.05 765.22 764.68 765.37 765.40 755.44 765.47 765.29 765.54 765.73

96+00 97+00 98+00 99+00 99+50 100+00

TR 230 (TOWN HALL ROAD)

CONTRACT NO.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

INA GARLAND

EX. 24" CMP
TO BE REMOVED

EX. POWER POLE
TO BE RELOCATED

STA. 99+23
℄ PR. S.N. 052-0077

EX. POWER POLE
TO BE RELOCATED

IMPROVEMENTS BEGIN
STA. 96+40

RUSH CREEK FARMS
C/O RIBORDY & CO.

STA. 99+57 ℄ EX. S.N. 052-0041

STA 3048+37 FAP 573 (US 30) =
STA 100+00 TR 230 (TOWN HALL ROAD)

28'
18'
28'
2' Shld.
20'
2' Shld.
97+00
98+00
99+
TR 230 (TOWN HALL ROAD)
B-1a
B-2a
50'
TRANSITION TO
EXISTING WIDTH

RUSH CREEK FARMS CORP.

ROBERT & CHARLOTTE
BRESSON

ILLINOIS DEPARTMENT OF TRANSPORTATION

3047
3048
3049
3050+00

N

0 20' 40'
SCALE: 1" = 20'

REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

TOPOGRAPHIC PLAN

SCALE: VERT.
HORIZ.
DATE

DRAWN BY
CHECKED BY

FILE NAME = S:\237\2005\23705002\CADD\z1020SSGR.dgn
USER NAME = $USER$
PLOT SCALE = 40.6549 ' / IN.
PLOT DATE = 9/30/2008

DESIGNED	-
DRAWN	-
CHECKED	-
DATE	-

REVISED	-
REVISED	-
REVISED	-
REVISED	-

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL PROFILE

SCALE:
SHEET NO. OF SHEETS STA. TO STA.

FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
230	(114-1)BR-2	LEE		

CONTRACT NO. 64B39

Sta 3048+14 65' Rt.

PROPOSED ROADWAY PROFILE
TOWN HALL ROAD

B–1a

MOIST (%)	Qu (tsf)	BLOWS (/12")	
21	1.0 P		MEDIUM/STIFF dark brown SILTY CLAY LOAM
23	1.1 P	11	STIFF gray/tan SILTY LOAM
25	0.8 P	7	MEDIUM tan SILTY LOAM
33	0.8 P	4	MEDIUM gray SILTY CLAY LOAM
35	0.6 B	6	MEDIUM dark gray SILTY CLAY LOAM 117.1 pcf
29	0.3 B	7	SOFT gray SILT 131.0 pcf
32	0.7 B	5	MEDIUM gray SILT 135.2 pcf
25	0.8 B	6	MEDIUM dark gray SILTY LOAM
		13	MEDIUM gray fine SAND
		20	MEDIUM gray clean medium coarse SAND
		27	MEDIUM gray fine SAND
		35	DENSE gray fine SAND
		16	Wash MEDIUM gray fine SAND
		29	MEDIUM gray fine SAND with SILT lens
14	2.1 S	21	VERY STIFF gray SILTY TILL 175.7 pcf
		26	MEDIUM gray fine SAND
		22	MEDIUM gray dirty SAND & GRAVEL
		11	Wash MEDIUM gray dirty SAND with medium GRAVEL
14	0.8 B	8	MEDIUM gray SILTY CLAY TILL 174.7 pcf
14	0.6 B	7	MEDIUM gray SILTY CLAY TILL 174.7 pcf
15	0.6 P	9	MEDIUM gray SILTY CLAY TILL
21	1.0 B	15	MEDIUM/STIFF gray SILT 161.9 pcf
22	1.3 S	8	Wash STIFF gray SILT 143.8 pcf
29	0.8 B	17	MEDIUM dark brown SILTY LOAM with ORGANICS 148.0 pcf
80	1.1 P	19	STIFF dark brown ORGANICS with SILTY LOAM 31% ORGANICS
20	1.8 B	15	STIFF gray SILTY CLAY TILL 138.4 pcf
18	1.9 B	9	STIFF gray SILTY CLAY TILL 134.2 pcf
12	0.8 B	13	MEDIUM gray SILTY CLAY TILL 157.6 pcf
12	1.5 B	14	STIFF gray SILTY CLAY TILL 159.7 pcf
12	2.1 B	18	VERY STIFF gray SILTY CLAY TILL 166.0 pcf
14	1.5 P	24	STIFF gray SILTY CLAY TILL
13	2.7 B	33	VERY STIFF gray SILTY CLAY LOAM TILL 161.9 pcf
12	3.5 B	26	VERY STIFF gray SILTY CLAY LOAM TILL 142.7 pcf
13	3.5 P	31	VERY STIFF gray SILTY CLAY LOAM TILL 142.7 pcf
		3	VERY LOOSE gray fine SAND
		9	LOOSE gray fine SAND
		20	MEDIUM gray fine SAND
		13	Wash MEDIUM gray fine SAND
		23	MEDIUM gray fine SAND
		32	DENSE gray fine SAND with SILT lens

744.6

End of Boring

Sta 3048+34 24' Rt.

PROPOSED STRUCTURE
NUMBER 052-0077

B–2a

751.9

BLOWS (/12")	Qu (tsf)	MOIST (%)	
			Asphalt and Gravel
7	1.5 P	23	STIFF gray SILTY LOAM
6	1.0 B	31	STIFF gray SILTY CLAY LOAM 120.3 pcf
4	0.5 B	29	MEDIUM gray SILTY LOAM 123.5 pcf
5	0.9 B	26	MEDIUM gray SILTY CLAY LOAM with SAND lens 120.3 pcf
5	0.3 B	28	SOFT gray SILT 134.2 pcf
11			MEDIUM gray fine SAND
17			MEDIUM gray dirty medium SAND
21			MEDIUM gray fine SAND
25			MEDIUM gray fine SAND with SILT lens
35	2.0 P	21	Wash STIFF gray SILT
42			DENSE gray fine SAND
18	1.4 B	15	Wash STIFF gray SILTY CLAY TILL 164.0 pcf
27	2.7 B	13	VERY STIFF gray SILTY CLAY TILL 171.5 pcf
22	1.7 B	11	STIFF gray SILTY CLAY TILL with fine SAND lens 167.2 pcf
19			MEDIUM gray clean medium coarse GRAVEL
22			Wash MEDIUM gray clean medium coarse SAND
25			MEDIUM gray fine SAND
13	1.0 B	16	Wash STIFF gray SILTY LOAM TILL 166.1 pcf
19	2.3 B	12	VERY STIFF gray SILTY CLAY LOAM TILL 177.8 pcf
6	1.0 B	14	STIFF gray SILTY CLAY LOAM TILL 155.5 pcf
12	0.7 B	14	MEDIUM gray SILTY CLAY LOAM TILL with fine SAND lens 153.4 pcf
13	0.8 P	22	MEDIUM gray SILT
17	2.0 P	113	STIFF brown ORGANICS 44% ORGANICS
33	1.5 P	55	STIFF brown SILTY LOAM with 24% ORGANICS
12	2.1 B	19	VERY STIFF gray SILTY CLAY LOAM TILL 139.5 pcf
6	0.7 B	22	MEDIUM gray SILTY CLAY LOAM TILL 132.1 pcf
6	0.5 B	23	MEDIUM gray SILTY CLAY LOAM TILL 157.6 pcf
13	1.7 B	12	Wash STIFF gray SILTY CLAY LOAM TILL 182.1 pcf
28	2.9 B	11	8/8/05 VERY STIFF gray SILTY CLAY LOAM TILL 180.0 pcf
25	2.5 S	10	VERY STIFF gray SILTY CLAY LOAM TILL 191.7 pcf
25	2.2 S	10	VERY STIFF gray SILTY CLAY LOAM TILL 182.1 pcf
43			DENSE gray dirty SAND & GRAVEL
28			MEDIUM gray dirty fine SAND
15			MEDIUM gray fine SAND
17			MEDIUM gray fine SAND
55			VERY DENSE gray fine SAND

End of Boring

Note: The Unconfined Compression Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer).
The SPT (N-value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

7.19.23 D_{50}=0.2mm

Flood Frequency	Proposed Melugins Road					
	Thalweg Elevation	Clear-Water Contraction Scour	Clear-water wing wallScour	Pressure Scour	Total Scour	Scour Elevation
		Ft.	Ft.	Ft.	Ft.	Ft.
81	756.15	4.61	4.39	8.79	17.79	**738.36**
86					0.00	**0.00**
91					0.00	**0.00**
100	756.15	4.61	4.39	8.79	17.79	**738.36**
200	756.15	4.61	4.39	8.79	17.79	**738.36**

Flood Frequency	Proposed Town Hall Road					
	Thalweg Elevation	Clear-Water Contraction Scour	Clear-water wing wallScour	Pressure Scour	Total Scour	Scour Elevation
		Ft.	Ft.	Ft.	Ft.	Ft.
81					0.00	**0.00**
86	752.88	3.65	3.16	8.99	15.80	**737.08**
91					0.00	**0.00**
100	752.88	3.65	3.16	8.99	15.80	**737.08**
200	752.88	3.65	3.16	8.99	15.80	**737.08**