TYPE III VARIANCE APPLICATION

TALBOTT PROPERTY – WESTERN PORTION LONDON-GROVEPORT ROAD CITY OF COLUMBUS, FRANKLIN COUNTY OHIO

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1.0 INTRODUCTION

Civil & Environmental Consultants (CEC) was engaged by Exxcel Management (Exxcel) on behalf of The Estate of C. Robert Talbott (Talbott) to compile a Type III Variance Request per the requirements of the City of Columbus Stormwater Drainage Manual (SWDM) relative to proposed encroachment into a Stream Corridor Protection Zone (SCPZ) including relocation of a perennial stream on the Talbott Property – Western Portion site in Columbus, Ohio (hereinafter referred to as the "Site"). The approximately 42-acre Site, identified as Franklin County parcel number 495-232641-00, is located south of London-Groveport Road and is currently owned by Robert C. Talbott. The location of the Site relative to roads and principal surface features is indicated on Figure 1.

1.1 PURPOSE AND NEED

To meet market demands for distribution warehouse space in proximity to Rickenbacker International Airport and the Rickenbacker Intermodal Terminal, Exxcel is proposing to build a 530,291 square foot distribution warehouse center and attendant features including roads, parking, landscaping, utilities, and a planned stormwater management system. To facilitate proposed development, Exxcel proposes to relocate 2,219 linear feet (LF) of Stimmel Ditch, a channelized perennial tributary of Big Walnut Creek, and 5.58 acres of its stream corridor buffer to a location along the north and west boundaries of the Site. In addition, a 436 LF segment of Stimmel Ditch and 1.32 acres of its stream corridor buffer is located in the southwestern corner of the Site will be restored.

The relocated and restored stream channel will be designed using natural channel design principles and will consist of a sinuous, stable channel that will result in improved water quality when compared to the existing straightened, channelized and silted channel. The length of the stream channel that will result from proposed relocation and restoration efforts on the Site is anticipated to be 2,940 LF (2,471 LF for the relocation section and 469 LF for the restoration section). The relocated and restored stream segments will include 8.30 acres of SCPZ (6.70 acres for the relocation section and 1.60 acres for the restoration section).

Per the requirements of the City of Columbus SWDM, a Type III Variance is required for the proposed stream relocation and restoration.

1.2 PROJECT BACKGROUND

In 2008 and 2009, Clean Water Act (CWA) Section 401/404 authorization was issued by the Ohio Environmental Protection Agency (OEPA) and the U.S. Army Corps of Engineers (USACE) for proposed relocation of 2,254 LF of Stimmel Ditch on the Site. It should be noted that the original

proposed stream impacts in 2009 were based on stream length data collected using a Trimble GeoXT handheld Global Positioning System (GPS) unit capable of recording data with sub-meter accuracy. In August of 2020, survey grade instrumentation capable of recording data with sub-centimeter accuracy (Trimble S7 Total Station) was used to record the location of Stimmel Ditch within the Site. Based on data recorded with survey grade instrumentation, the length of the on-site segment of Stimmel Ditch is 2,655 LF, and proposed impacts based on this survey grade data are 2,219 LF. Stream lengths in this permit application are based on the 2020 survey grade data.

That permit expired in December of 2012; however, the site was not developed and the stream was not relocated. In 2017, Donald Plank was pursuing re-applying for a new CWA Section 401/404 permit to relocate the same stream segment on the Site. At that time, CEC also initiated coordination with the Columbus Division of Sewerage and Drainage (CDSD) including a meeting with Mr. Chad Holtzapful of CDSD. Items discussed with Mr. Holtzapful were the proposed stream impacts and content of an anticipated Type III Variance request. It was determined that the project was not moving forward at that time; therefore, neither the CWA Section 401/404 applications nor the Type III Variance request was submitted.

CEC, on behalf of Exxcel, is compiling application requests for CWA Section 401/404 authorization to relocate the section of Stimmel Ditch discussed in the preceding paragraphs for a proposed distribution warehouse development. A pre-application meeting was conducted via teleconference on August 3, 2020 including representatives from the OEPA, USACE, Exxcel, and CEC. During the pre-application meeting, OEPA and USACE representatives verbally noted that the concept of on-site stream relocation at a minimum mitigation ratio of 1:1 would be acceptable. CEC and Exxcel also had teleconference meetings with the CDSD on October 15, 2020 and February 5, 2021 to discuss the proposed relocation of the stream segment and the anticipated Type III variance request.

The original 85 +/- acre London-Groveport site has recently undergone a lot split and is now divided into Talbott Property - Western Portion (42 +/- acre) and Talbott Property - Eastern Portion (43 +/- acre). Talbott Property - Eastern Portion has no regulated stream or wetland features and is currently being developed independently of the Talbott Property - Western Portion.

1.3 EXISTING SITE CONDITIONS

An approximately 2,655 LF segment of a Stimmel Ditch transects the Site from the northeastern corner to the southwestern corner. The existing channel has been highly impacted by past channelization, straightening, and siltation from adjacent agricultural usage. The majority of the current wooded riparian zone is 25 feet or less wide per center of stream (with the exception of the eastern bank at the former farmstead). In addition, the stream lacks a developed floodplain and is

vegetated with low quality, fast growing and short-lived tree species such as *Acer negundo* (Box elder), *Morus rubra* (red mulberry), and *Morus alba* (white mulberry). Furthermore, the understory is dominated by invasive *Lonicera maackii* (bush honeysuckle).

A 36" diameter storm sewer extends under London-Groveport Road onto the Site. The 36" storm sewer necks down and discharges into a 15" diameter field tile on the Site, which eventually discharges into the existing stream near the center of the Site. The CDSD has indicated that the Site owner is responsible for handling the flow discharged from the 36" pipe. The locations of the 36" storm sewer and 15" field tile are shown and labled on Sheet EC301 of the Stream Relocation Plans presented in Appendix I.

An existing sanitary sewer easement access road is located on the west portion of the Site adjacent to the west Site boundary. Access must be maintained to the City of Columbus sanitary sewer tunnel shafts located in the southwestern corner of the Site.

1.4 SCPZ WIDTHS ON EXISTING STREAM

The SCPZ widths for the existing stream were determined using the following equation from Section 1.3.1 of the SWDM:

SCPZ, in feet of width = $147(DA)^{0.38}$.

Where DA = drainage area of the stream in square miles

Within the Site, there are various points where additional drainage enters Stimmel Ditch; therefore, the SCPZ width varies within the Site based on changes in drainage area where the additional drainage enters the stream. Drainage areas used in the SCPZ calculations were determined using the U.S. Geological Survey (USGS) StreamStats application for three points within the Site where additional drainage enters the stream. The locations of these three points are indicated on Figure 3 and StreamStats reports are presented in Appendix A. The SCPZ calculations for the three points are summarized as follows:

StreamStats Point 1 begins before a point before 36" storm sewer discharges into the existing stream on-site (Lat. Long. 39.82934, -82.96293) - Drainage area 0.33 Square miles – SCPZ width = 147(0.33)0.38 = 96.46" or 50" per center of stream.

StreamStats Point 2 begins before a point just after 36" storm sewer discharges into the existing stream on-site (Lat. Long. 39.82805, - 82.96444) - Drainage area 0.64 square miles – SCPZ width =147(0.64)0.38 = 124.07' or 62' per center of stream.

StreamStats Point 3 begins before a point were drainage comes from the west into the existing stream (Lat. Long. 39.82690, -82.96498) — Drainage area 0.81 square miles — SCPZ width =147(0.81)0.38 = 135.67° or 68° per center of stream.

2.0 VARIANCE SUBMITTAL REQUIREMENTS

2.1 SECTION 1 – REASON VARIANCE IS REQUESTED

2.1.1 Type of Variance Sought

On behalf of Exxcel, CEC requests variances from the following SWDM sections and sub-sections for the preferred alternative for the development of the Site:

- 1) SWDM Section 1.1 and 1.3.3 (Table 1-1) On-site relocation and the filling of approximately 2,219 LF of an unnamed perennial tributary to Big Walnut Creek.
- 2) SWDM Section 1.1 and 1.3.3 (Table 1-1) On-site restoration of approximately 436 LF of an unnamed perennial tributary to Big Walnut Creek.
- 3) SWDM Section 1.3.3 (Table 1-1) Associated riparian impacts (tree/vegetation removal) in the SCPZ of the proposed filled/relocated/restored section of stream totaling an estimated 6.90 acres.

2.1.2 Narrative Summary

2.1.2.1 Impact to Stream, SCPZ, Water Quality, and Water Quantity

If the variances are granted for the preferred development alternative, 2,471 LF of Stimmel Ditch and its SCPZ will be relocated along the north and west portions of the Site. This relocation is necessary to facilitate filling and grading needed for proposed Site development. In addition, a 469 LF segment of Stimmel Ditch located in the southwestern portion of the Site will be restored.

The relocated and restored stream channel will be designed using natural channel design principles and will consist of a sinuous, stable channel that will result in improved water quality when compared to the existing straightened, channelized and silted channel. Siltation will be reduced in the relocated stream channel with a wider riparian zone, which will no longer be encroached on by agricultural usage. The reestablished SCPZ on the 2,940 LF of relocated/restored stream channel will be approximately 8.30 acres, an increase of 1.40 acres of SCPZ from the original stream channel. Plantings of desirable native tree and shrub species in the SCPZ of the relocated stream will create improved habitat quality when compared to the low quality, fast growing and short-lived tree species that are currently in the existing SCPZ of Stimmel Ditch.

As discussed in Section 1.3 of the draft variance application, a 36" diameter storm sewer extends under London-Groveport Road onto the Site. The 36" storm sewer necks down and discharges into a 15" diameter field tile on the Site, which eventually discharges into the existing stream near the center of the Site.

The design of the relocated stream channel has incorporated a pool based design to facilitate reestablishment of habitat within the stream corridor. As stated in Section 2.3.2, the existing stream has been severely impacted from historic agricultural land use, which includes channel straightening and periodic maintenance excavation (channel clean out). These actions have resulted in a channel that is largely devoid of riffle and pool diversity, dominated by a homogenous substrate and over-wide channel. The pool based design of the relocated channel will increase the diversity of habitat for macroinvertabrates, which is lacking in the existing stream. The existing stream channel is currently exhibiting more of an intermittent flow pattern than a perennial flow as originally designated by the US Army Corps of Engineers as evident in photographs of a dry channel with isolated pools as shown on drawing No. EC000 in Appendix I of the variance application. The concentration of available water in a narrower channel with constructed pools and engineered biological habitat in the relocated stream channel will off-set the possible reduction of water from the redirection of the flow from the 36" storm sewer/15" field tile through the detention basin.

The on-site segment of Stimmel Ditch originates at the outlet of two 24 inch culverts (one reinforced concrete pipe and one high density polyethylene pipe) that extend under London Groveport Road from the north. The stream relocation design is based on flow currently provided by these two culverts and is not reliant of the water from the 36" storm sewer/15" field tile. The stream mitigation plan has been developed by CEC's ecological restoration group of scientists and biologists based on the existing watershed and incorporated known instream features proven to enhance the biodiversity over the current condition of the existing stream. The long term "ecological health" of the stream is based on many uncontrollable variables such as weather, climate change and off-site impacts on the watershed. The 5 year monitoring plan provides an opportunity to modify the relocated stream if attainment goals are not initially met. CEC believes the pool based design, engineered biological habitat and ability to modify the relocated stream during the monitoring period should be sufficient to maintain the streams ecological health, even with the diversion of the 36" storm sewer/15" field tile flow into the detention basin.

The 36" storm sewer/15" field tile is a man-made stormwater management issue created by others and should be addressed as a stormwater management issue during the development of the Site as currently proposed by directing the flow through the proposed on-site detention basin.

It was CEC's initial plan and intent to route the water from the 36" storm sewer into the relocated stream channel where it enters the Site along London-Groveport Road. However, during the

stream relocation design process, it was determined that in order to facilitate that, it would require rising the existing 36" pipe under London-Groveport Road approximately 3 feet and lowering the proposed stream relocation stream bed elevation approximately 3 additional feet. That would result in a deeply entrenched relocation channel as well a much wider footprint that would further reduce the buildable area of the Site and increase the financial hardship of the Site owner. Additionally, it is understood that the newly adopted 2020 City of Columbus Department of Public Utilities Stormwater Drainage Manual would not restrict the retention of off-site stormwater in the proposed on-site detention basin.

Existing flooding issues reported by CDSD on properties located on the north side of London-Groveport Road related to the 36" storm sewer backing up where it flows into a 15" field tile on the Site would not be rectified if the variance was not granted.

The water quantity will remain relatively unchanged as the two 24" culverts located in the northeastern corner of the Site that currently discharge into the existing stream in the northeastern corner of the Site will continue to provide flow into the relocated stream channel if the variance is granted.

2.1.2.2 Summary of Substantial Hardship and Land Use Deprivation Related to Compliance with the SWDM

As discussed in Section 1.1, the purpose and need for the proposed Site is to meet market demand for distribution warehouse space in proximity to Rickenbacker International Airport and the Rickenbacker Intermodal Terminal. As discussed in Section 2.2, based on the orientation of Stimmel Ditch extending from northeast to southwest across the center of the Site, complete avoidance of the segment of Stimmel Ditch and its associated SCPZ on the Site would result in substantial reduction developable acreage. Existing utility easements located along the north portion of the Site and stormwater conveyed across the site in a 15" drain tile also represent land use limitations that affect the ability of the applicant to meet the project purpose and need without impacting Stimmel Ditch or its SCPZ. While smaller warehouse structures could be constructed on the Site while avoiding Stimmel Ditch and its SCPZ, the resulting reduction in developable area would not allow for structures of sufficient size to support distribution warehouse uses desired by the market. Therefore, development of the Site in full compliance with the SWDM would result in substantial financial hardship and deprivation of land use for the applicant.

The applicant also evaluated properties in the surrounding area to determine if there were other properties that would facilitate the project purpose and need while complying with the SWDM. Off-site alternative properties were eliminated from consideration because they were not available for sale at feasible prices; did not contain required acreage; were not zoned appropriately; and/or, would require more environmental impacts than the Preferred Site.

2.2 SECTION 2 – DEVELOPMENT ALTERNATIVES

Discussion of the preferred development plan, a minimal impact development plan, and a no impact development plan is provided in Sections 2.2.1 through 2.2.3. A summary and comparison of the social and economic benefits of each alternative development plan is provided in Table 1 in Appendix B.

2.2.1 Preferred Development Plan

2.2.1.1 Impact to Stream, SCPZ, Water Quality, and Water Quantity

Refer to Section 2.1.2.1 for discussion of proposed impacts to the stream, SCPZ, water quality, and water quantity associated with the preferred development plan. An exhibit depicting the configuration of the preferred development plan including the proposed relocated and restored stream and SCPZ is presented in Appendix C. In addition, the Construction Plan Drawings for the Preferred Development Alternative are presented in Appendix I.

2.2.1.2 Social Benefits

As summarized in Table 1 in Appendix B, implementation of the preferred development plan would result in multiple benefits for the local community including the following:

- Creation of temporary construction jobs including associated federal, state and local payroll tax income.
- Creation of permanent jobs associated with operation of the proposed distribution warehouse facility including associated federal, state and local payroll tax income.
- Support of ancillary jobs such as truck drivers, train operators, aviation operators, and business entities shipping to or receiving from the proposed development.
- Increased property tax revenue based on the increased value of Site improvements.
- Correction of existing flooding issues related to a 36" diameter storm sewer under London Groveport Road that discharges into a 15" drain tile on the Site. The current drainage issue has periodically resulted in temporary closure of London Groveport Road, a crucial commerce road, delaying the shipping of goods.

2.2.1.3 Development Feasibility

The intent of the development is to construct a cross docked, bulk industrial building. The preferred development plan will facilitate construction of a facility of sufficient size and in a configuration

that is most desired for parking and truck positioning. The cross docked configuration allows the truck capacity and resulting efficiency to double compared to a single dock configuration. The preferred development plan will allow maximum use of the developable acreage on the Site.

2.2.2 Minimal Impact Development Plan

2.2.2.1 Impact to Stream, SCPZ, Water Quality, and Water Quantity

This minimal impact development alternative, depicted on the exhibit included in Appendix D, would require the relocation of approximately 840 LF of Stimmel Ditch and its SCPZ in the northwest portion of the Site. Similar to the preferred development plan, the relocated stream segment would be designed using natural stream channel design principles and will consist of a sinuous, stable channel that will result in improved water quality when compared to the existing straightened, channelized and silted channel. Siltation will be reduced in the relocated stream channel with a wider riparian zone, which will no longer be encroached on by agricultural usage. Plantings of desirable native tree and shrub species in the SCPZ of the relocated stream will create improved habitat quality when compared to the low quality, fast growing and short-lived species that are currently in the existing SCPZ of Stimmel Ditch. However, water quality in portions of Stimmel Ditch that are avoided by the minimal impact development plan will continue to be adversely affected by existing stressors including unstable channel conditions, lack of an accessible floodplain, unstable banks, siltation, and an SCPZ consisting primarily of low quality, fast growing and short-lived tree species and agricultural land.

Consistent with the preferred development plan, the water quantity will remain relatively unchanged as the two 24" culverts that currently discharge into Stimmel Ditch in the northeastern corner of the Site will continue to provide flow into the relocated stream channel and non-impacted portions of the stream if the variance is granted. The water from the existing 36" storm sewer and 15" field tile that discharges into the Stimmel Ditch (refer to Section 1.3) will remain in the current configuration under the minimal impact development plan and will continue to discharge into the existing stream at the existing 15" field tile outlet location. Therefore, it is anticipated that water quantity in the on-site segment of Stimmel ditch will not be affected by the minimal impact development plan. However, flooding issues related to the current discharge from the 36" storm sewer pipe under London Groveport road into the 15" field tile on the site will not be resolved if the minimal impact development is implemented.

2.2.2.2 Social Benefits

As summarized in Table 1 in Appendix B, implementation of the minimal impact development plan would result in multiple benefits for the local community including the following:

- Creation of temporary construction jobs including associated federal, state and local payroll tax income.
- Creation of permanent jobs associated with operation of the proposed bulk industrial building including associated federal, state and local payroll tax income.
- Support of ancillary jobs such as truck drivers, train operators, aviation operators, and other business entities shipping to or receiving from the proposed development.
- Increased property tax revenue based on the increased value of Site improvements.

However, the minimal impact development plan is anticipated to create approximately 60% fewer jobs and significantly less payroll and property tax revenue than the preferred development plan. Furthermore, as discussed in Section 2.2.2.1, the minimal impact development plan does not correct flooding issues related to the City of Columbus 36" storm sewer that flows into a 15" field tile that crosses the Site.

2.2.2.3 Development Feasibility

The reduction of developable acreage associated with the minimal impact development plan will reduce the size of the proposed bulk industrial building by almost 50% compared to the preferred development plan. Furthermore, this reduction in size in combination with configuration changes necessary to minimize impacts to Stimmel Ditch and its SCPZ will require the applicant to construct a single load building rather than the desired cross docked configuration discussed in Section 2.2.1.3. The single load configuration reduces truck docking capacity and efficiency and will result in a product that is less desirable to end users for the proposed building. The current proposed developer for this project would likely abandon this project as the proposed building size and single load design would not meet their needs. Therefore, the minimal impact development plan is not feasible because it would result in financial hardship and deprive the applicant of the reasonable use of the land.

2.2.3 No Impact Development Plan

2.2.3.1 Impact to Stream, SCPZ, Water Quality, and Water Quantity

The no impact development plan, depicted on an exhibit included in Appendix E, would not result in impacts to the on-site segment of Stimmel Ditch or its SCPZ. Proposed development for this plan is not anticipated to adversely affect water quality or quantity in Stimmel Ditch. However, improvements to stream stability, floodplain access, and SCPZ habitat quality associated with stream relocation and restoration for the preferred development plan and the minimal impact development plan are not proposed for the no impact development plan.

Similar to the minimal impact development plan, the water from the existing 36"storm sewer and 15" field tile that discharges into the existing stream (refer to Section 1.3) will remain in the current configuration under the no impact development plan and will continue to discharge into the existing stream at the existing tile outlet location. Therefore, flooding issues related to the current discharge from the 36" storm sewer pipe under London Groveport road into the 15" drain tile on the Site will not be resolved if the no impact development is implemented.

While the minimal impact plan would typically generate more jobs than the no impact plan. The difference in the number of jobs is based on the development of two individual smaller buildings with an office warehouse usage for the no impact alternative. This is not a marketable building use for the area and therefore would not be built. The minimal impact plan proposes one distribution warehouse that would require a smaller workforce than the two office warehouse buildings proposed for the no impact plan.

2.2.3.2 Social Benefits

As summarized in Table 1 in Appendix B, implementation of the no impact development plan would result in multiple benefits for the local community including the following:

- Creation of temporary construction jobs including associated federal, state and local payroll tax income.
- Creation of permanent jobs associated with operation of the proposed buildings facility including associated federal, state and local payroll tax income.
- Support of ancillary jobs such as truck drivers, train operators, aviation operators, and other business entities shipping to or receiving from the proposed development.
- Increased property tax revenue based on the increased value of Site improvements.

However, the no impact development plan is anticipated to create approximately 50% fewer jobs and significantly less payroll and property tax revenue than the preferred development plan. Furthermore, as discussed in Section 2.2.3.1, the no impact development plan does not correct flooding issues related to the City of Columbus 36" storm sewer that flows into a 15" field tile that crosses the Site.

2.2.3.3 Development Feasibility

The reduction of developable acreage associated with the no impact development plan will require development of two smaller buildings that are not suitable for use as bulk industrial buildings; therefore the smaller buildings would be suitable for office warehouse use. The combined size of the two building would be less than 50% of the building space proposed under the preferred development plan. Furthermore, this reduction in size in combination with configuration changes necessary to minimize impacts to Stimmel Ditch and its SCPZ will require the applicant to construct a single load buildings rather than the desired cross docked configuration discussed in Section 2.2.1.3. The single load configuration reduces truck docking capacity and efficiency and will result in a product that is less desirable to end users for the proposed building. The current proposed developer for this project would abandon this project as the proposed building size and single load design would not meet their needs. Therefore, the no impact development plan is not feasible because it would result in financial hardship and deprive the applicant of the reasonable use of the land.

2.3 SECTION 3- DEMONSTRATION OF ADEQUATE MITIGATION

2.3.1 Impacts to SCPZ

The preferred development plan will result in impacts to approximately 5.58 acre of the SCPZ of Stimmel Ditch on the Site. To mitigate for proposed SCPZ impacts, an equivalent SCPZ will be established with the relocated segment of Stimmel Ditch along the north and west portions of the Site. In addition, approximately 1.32 acres of SCPZ associated with the proposed restored portion of Stimmel ditch located in the southwestern portion of the Site will also be replanted and restored. It is anticipated that the SCPZ of the relocated and restored stream on Site will be approximately 8.30 acres.

In compliance with the City of Columbus Tree Protection and Mitigation Policy, trees that are removed within the existing SCPZ of Stimmel Ditch will be replaced within the new proposed SCPZ at a minimum of a 1:1 ratio as per the City's replacement guidance. Stream Corridor Protection Zone Reforestation Plans were prepared and are presented in Appendix F. The Stream Corridor Protection Reforestation Plans include an inventory of existing trees located within the existing SCPZ of Stimmel Ditch, replacement rations, tree sizes, tree species to be planted, and locations of the replacement trees to be planted in the new SCPZ of the relocated stream.

CEC has prepared a planting plan for the new proposed SCPZ that will consist of native trees and shrubs that will provide improved habitat compared to the low quality tree species present in the existing SCPZ. Undesirable species in the current SCPZ will be replaced by desirable species in the relocated SCPZ.

In addition to the replacement trees, the mitigation area stream banks within the SCPZ will be stabilized using live stake plantings. Live stakes will be planted at and below the bankfull water elevations to create bank stability and bare root plantings (minimum of 500 stems per acre) will be installed in the vegetated buffer (floodplain and uplands) outside the top of banks. Herbaceous vegetation will be planted on stream banks and floodplains. Sheet EC501 in Attachment I outlines the proposed planting schedules for the mitigation area. The proposed Mitigation Plan prepared for the 401/404 permitting can be provided upon request

An environmental easement will be placed on the SCPZ of the relocated stream that names the City of Columbus as the Grantee. The environmental easement will be placed on the entire 8.30 acres of the future SCPZ, with the exceptions of the two proposed sanitary sewer easements and one existing storm sewer. The two proposed sanitary easements and one existing storm sewer total 1.2 acres that will be exempt for the easement agreement. The SCPZ/environmental easement protected area is shown on both the attached Stream Relocation Plans presented in Appendix I and the Stream Corridor Protection Zone Reforestation Plan presented in Appendix F. The environmental easement shall include, as attachments, a metes and bounds (survey) description of the protected mitigation area, and survey maps showing the boundaries of all the protected mitigation areas. In addition, Environmental Easement area signs will be placed within visual distance of each other (every 100 feet) along the edge of the conservation area.

2.3.2 Impact Directly to Stream

The preferred development plan will result in 2,219 LF of impact to the segment of Stimmel Ditch on the Site. To mitigate for proposed stream impacts, the on-Site stream segment will be relocated into approximately 2,471 LF of stream channel that will be created on the north and west portions of the Site. The relocated stream segment will be designed using natural stream design principles. As discussed in section 2.3.1, the SCPZ will be established along the relocated stream segment to mitigate for proposed SCPZ impacts. It is proposed to set an attainment goal of an HHEI score of at or above 65 on the relocated stream. An anticipated restoration HHEI value based on the proposed construction parameters of the relocated stream channel is 78. The anticipated restoration value HHEI form for the relocated stream is included in Appendix J.

In addition, a 436 LF segment of straight-lined channel will be restored to 469 LF of restored stream channel in the southwestern portion of the Site using natural stream channel principles. As discussed in section 2.3.1, the SCPZ associated with the restored section of Stimmel Ditch will be replanted and restored.

In accordance with Section 3 Part B of the 2012 CDSD *Guidance Document for Applying for a Variance from the Stormwater Drainage Manual*, the applicant must demonstrate that the proposed

mitigation is adequate by comparing evaluations of existing stream health and functionality with estimated stream health and functionality of the proposed relocated stream. The existing stream has a maximum pool depth of less than 40 centimeters and a drainage area less than one square mile; therefore, OEPA's *Feld Methods for Evaluating Preliminary Headwater Streams in Ohio* was used to evaluate the quality of the existing condition of the on-site stream segment. A preliminary Headwater Habitat Evaluation Index (HHEI) score was determined for the existing stream in two separate reaches. HHEI Reach #1 was located upstream of where the 15" field tile enters stream, and HHEI Reach #2 was located downstream of where the 15" field tile enters stream. The HHEI score for Reach #1 was 65 and the score for Reach #2 was 60. Based on the HHEI flowchart in the OEPA manual, these stream reaches are Modified Class II Primary Headwater Habitat (PHWH). The approximate extent of Upper and Lower Reaches of the stream are identified on Figure 3 and the HHEI forms are included in Appendix G.

Additional data collected to support the HHEI scores for the existing stream are approximate and based on field observations, cross section data, and topography of the Site. This data is summarized below and presented in Table 2. Pebble count/particle size data sheets are located in Appendix H.

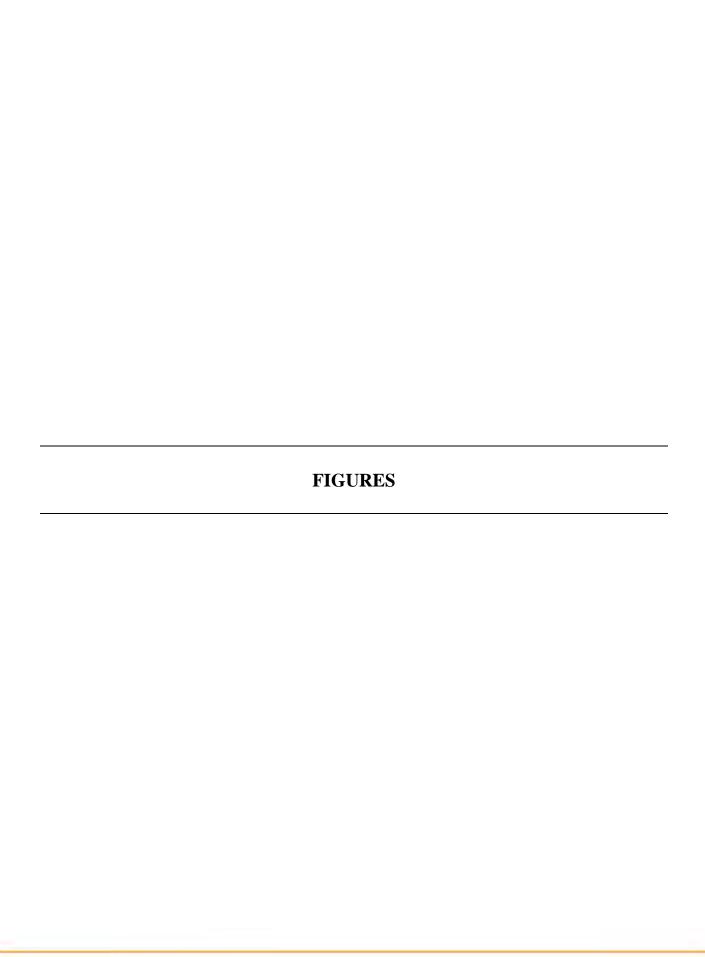
The stream channel has been severely impacted from historic agricultural land-use and many of the naturally occurring or observable parameters requested in Section 3 Part B of the 2012 CDSD *Guidance Document for Applying for a Variance from the Stormwater Drainage Manual* were obscured or modified. These impacts include channel straightening and periodic maintenance excavation (channel clean out). These actions have resulted in a channel that is largely devoid of riffle and pool diversity, dominated by a homogeneous substrate, over-widened channel, portions of the channel are disconnected from the flood prone area, has minimal slope gradient, and has effectively no sinuosity.

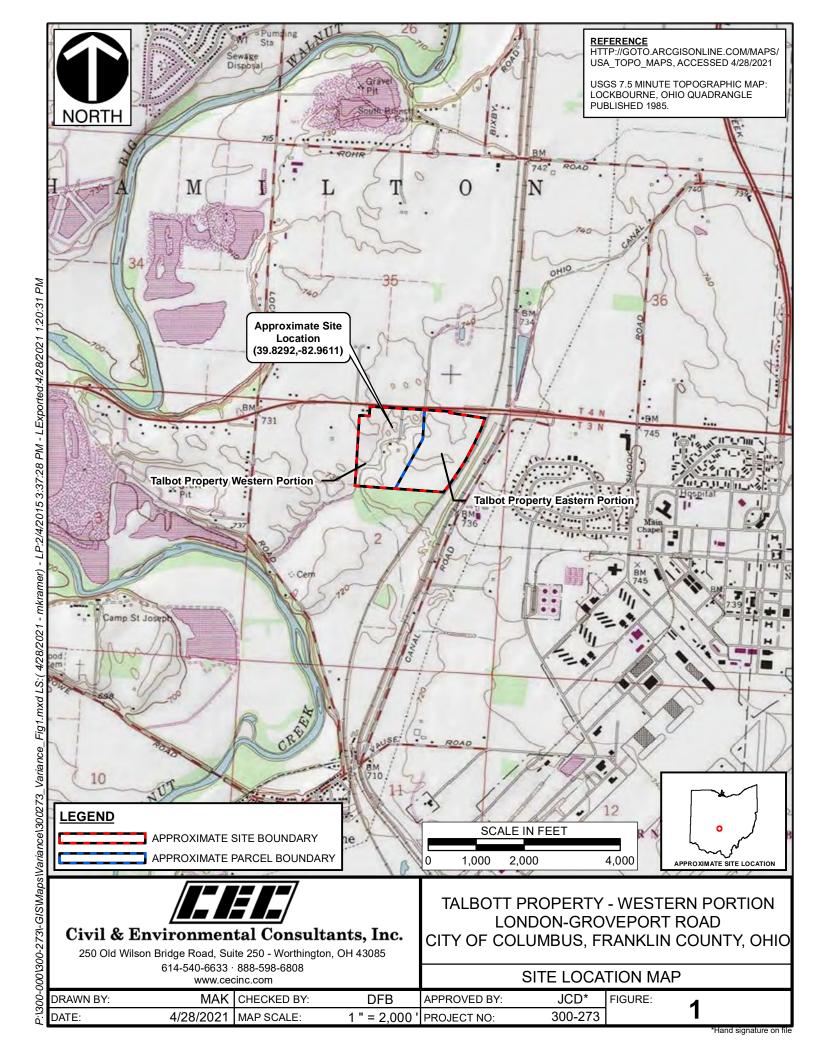
The stream channel does not have an OEPA designated aquatic life use. The slope of the overall stream channel is less than 1% and is significantly low in the Lower Reach (<0.10%), likely a result of historic excavation. The channel width increases with drainage area as to be expected, but the Upper Reach has become more entrenched and is disconnected from a floodplain. This has resulted in scouring of fine sediment and a larger D84 particle size. Generally, the lower width to depth ratios infer instability and should greater than 12.

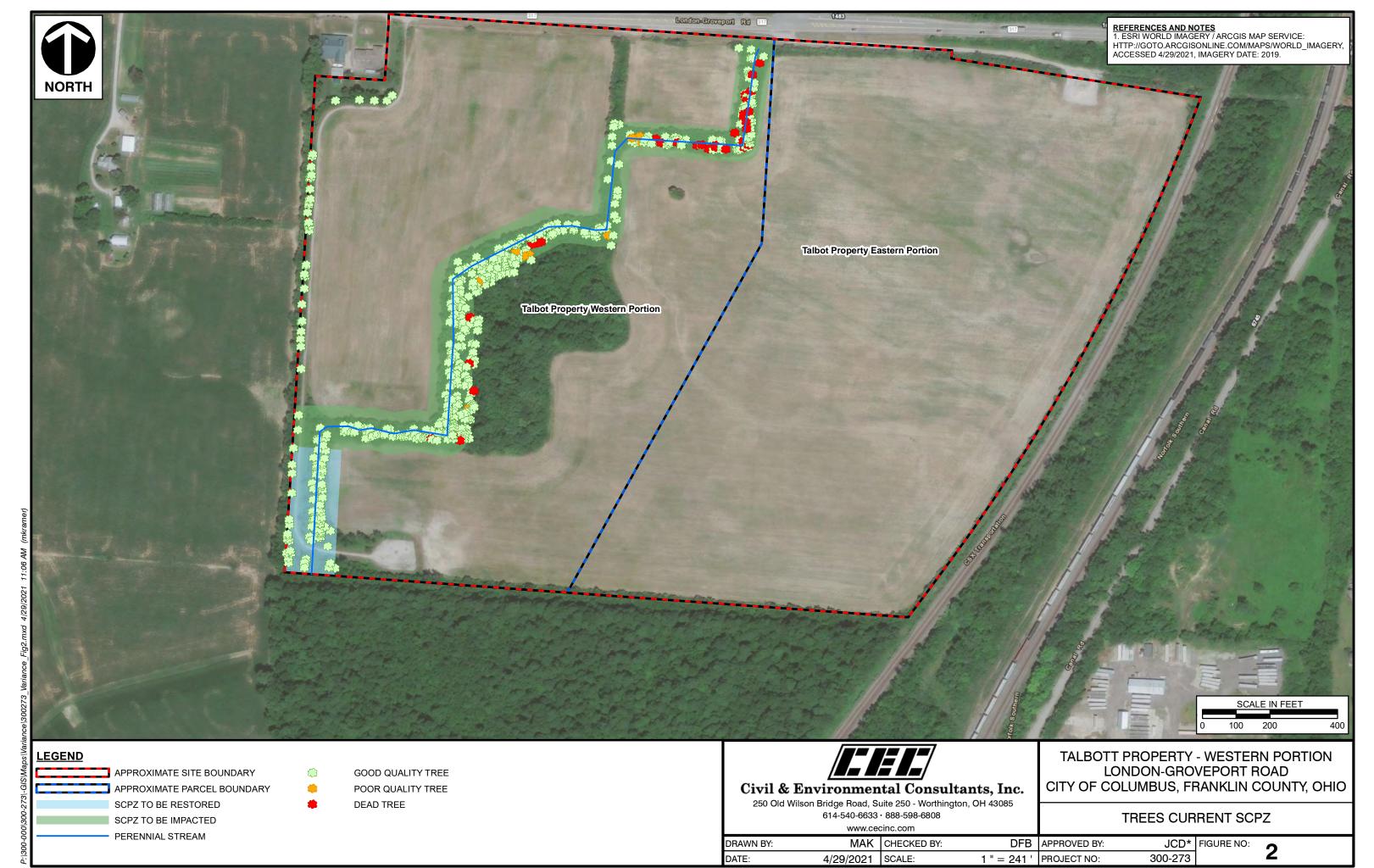
Notably, the transition area above the location where the 15" drain tile discharges into the stream has been affected by agricultural crossings in conjunction with the excavation management and this has translated to significant deposition of silt and clay within the Lower Reach. The natural bedload has been removed during excavation management, but the residual coarse aggregate has been masked with a thick layer of fine sediments that is characterized by an extremely low D84 observed throughout. The over-widening of the channel has resulted in a loss of sediment transport competence and inability to flush out the fine sediment.

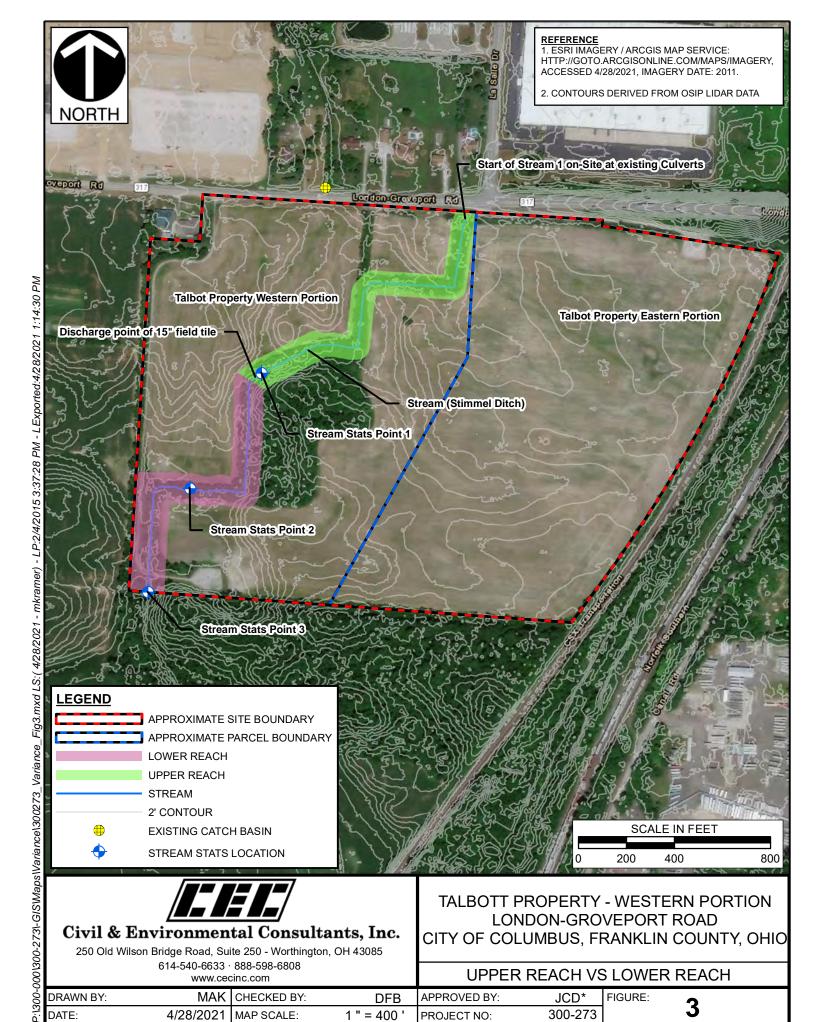
The stream channel has been severely impacted by land management activities and does not reflect suitable reference reach conditions. A majority of the parameters identified in Table 2 below do not meet the definition of any Rosgen Stream Classification type but based on the landscape, slope and other naturally occurring stream channels in the region, this channel can be best characterized as a heavily modified C4c- Rosgen Stream Classification. Both the existing and proposed 100 year floodplain is presented on the Preferred Development Plan presented in Appendix C. In addition, the existing 100 year floodplain is shown on sheet EC200 in Appendix I. The proposed 100 year flood plain is proposed on EC401-EC405 in Appendix I. The proposed stream channel in the restoration area will target a stable C type stream channel morphology having a width to depth ratio greater than 12, an entrenchment ratio greater than 2.2, a slope between 0.1% and 1.3%, and a sinuosity greater than 1.2. The D84 and riffle habitat of the proposed stream will be based on hydraulic evaluations of particle size based on shear stress.

TABLE 2: STREAM SUMMARY DATA			
	Upper Reach	Lower Reach	
HHEI Score	65	60	
Aquatic Life Use	Not Listed	Not Listed	
Stream Gradient (%)	0.6	<0.1	
Average Bankfull Width	8.1	9.9	
Width to Depth Ratio	7.3	9.7	
Entrenchment Ratio	1.6	>2.2	
Substrate D84 (mm)	132.7	4	
Sinuosity	1.03		
Rosgen Stream Type	C4c- (Heavily Modified)		
Drainage Area (sq mi)	0.33	0.64	

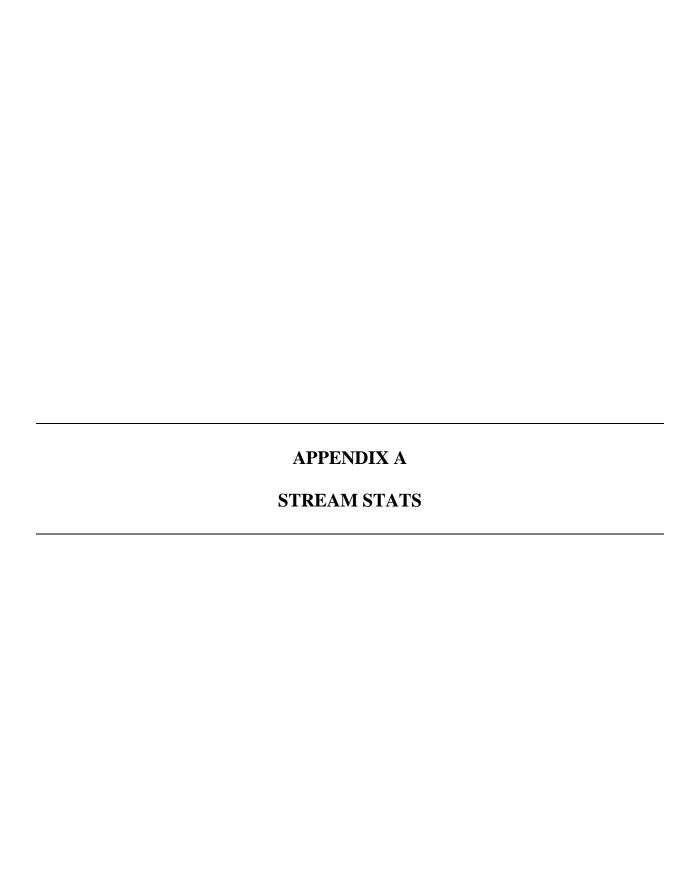








*Hand signature on file



StreamStats Report

Region ID:

 OH

Workspace ID:

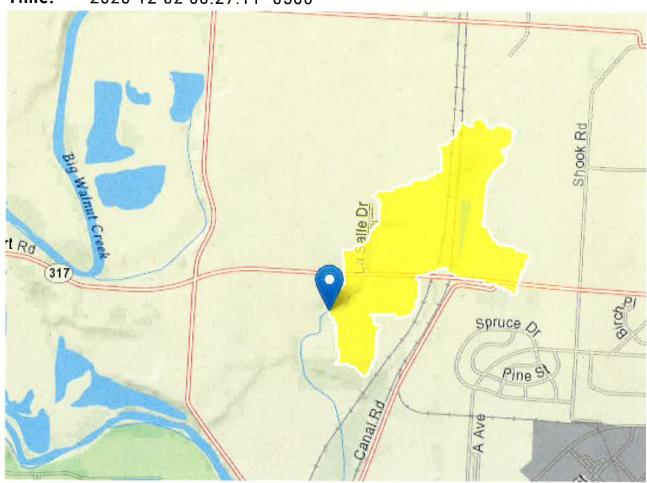
OH20201202132653872000

Clicked Point (Latitude, Longitude):

39.82934, -82.96293

Time:

2020-12-02 08:27:11 -0500



Basin Characteristics

Parameter

Code

Parameter Description

Value

Unit

Parameter Code	Parameter Description	Value	Unit
CSL1085LFP	Change in elevation divided by length between points 10 and 85 percent of distance along the longest flow path to the basin divide, LFP from 2D grid	19.5	feet per mi
DRNAREA	Area that drains to a point on a stream	0.33	square miles
FOREST	Percentage of area covered by forest	6.66	percent
LAT_CENT	Latitude of Basin Centroid	39.8333	decimal degrees
LC11DEV	Percentage of developed (urban) land from NLCD 2011 classes 21-24	42.6	percent
LC11IMP	Average percentage of impervious area determined from NLCD 2011 impervious dataset	26.9	percent
LC92STOR	Percentage of water bodies and wetlands determined from the NLCD	3.72	percent
LFPLENGTH	Length of longest flow path	1.41	miles
LONG_CENT	Longitude Basin Centroid	82.9559	decimal degrees
OHREGA	Ohio Region A Indicator	1	dimensionless
OHREGC	Ohio Region C Indicator	0	dimensionless
PRECIP	Mean Annual Precipitation	39.3	inches
STREAM_VARG	Streamflow variability index as defined in WRIR 02-4068, computed from regional grid	0.58	dimensionless

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USGS Product Names Disclaimer: Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

Application Version: 4.4.0

StreamStats Report at end of relocation

Region ID: OH

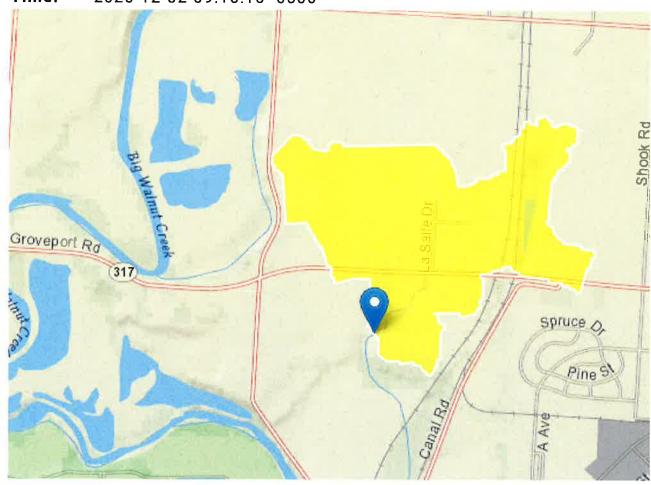
Workspace ID:

OH20201202141558486000

Clicked Point (Latitude, Longitude):

39.82805, -82.96444

2020-12-02 09:16:16 -0500



End of relocation at turn in stream from west to south near western property line.

Basin Characteristics

Parameter

Code Parameter Description Value Unit

Parameter Code	Parameter Description	Value	Unit
CSL1085LFP	Change in elevation divided by length between points 10 and 85 percent of distance along the longest flow path to the basin divide, LFP from 2D grid	17.7	feet per mi
DRNAREA	Area that drains to a point on a stream	0.64	square miles
FOREST	Percentage of area covered by forest	4.35	percent
LAT_CENT	Latitude of Basin Centroid	39.834	decimal degrees
LC11DEV	Percentage of developed (urban) land from NLCD 2011 classes 21-24	36.7	percent
LC11IMP	Average percentage of impervious area determined from NLCD 2011 impervious dataset	22.1	percent
LC92STOR	Percentage of water bodies and wetlands determined from the NLCD	1.88	percent
LFPLENGTH	Length of longest flow path	1.56	miles
LONG_CENT	Longitude Basin Centroid	82.9603	decimal degrees
OHREGA	Ohio Region A Indicator	1	dimensionless
OHREGC	Ohio Region C Indicator	0	dimensionless
PRECIP	Mean Annual Precipitation	39.3	inches
STREAM_VARG	Streamflow variability index as defined in WRIR 02-4068, computed from regional grid	0.58	dimensionless

12/2/2020 StreamStats

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Application Version: 4.4.0

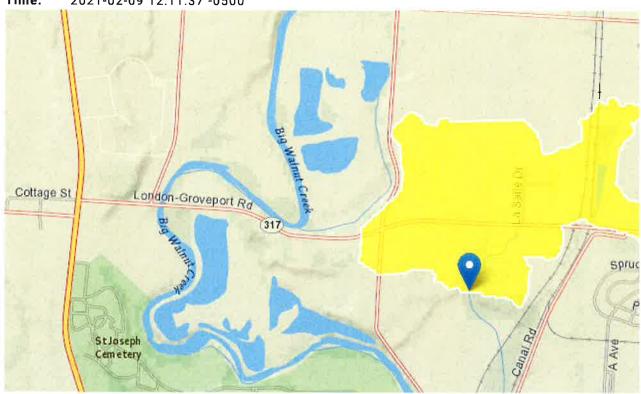
StreamStats Report

Region ID: OH

Workspace ID: 0H20210209171204324000

Clicked Point (Latitude, Longitude): 39.82690, -82.96498

Time: 2021-02-09 12:11:37 -0500



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit	
DRNAREA	Area that drains to a point on a stream	0.81	square miles	

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Application Version: 4.4.0

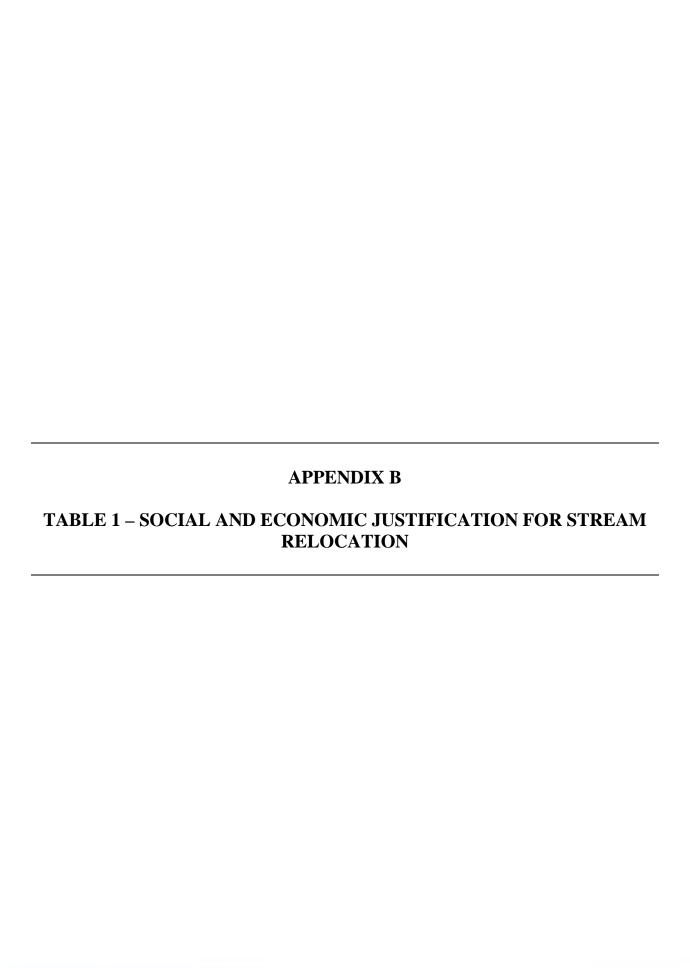
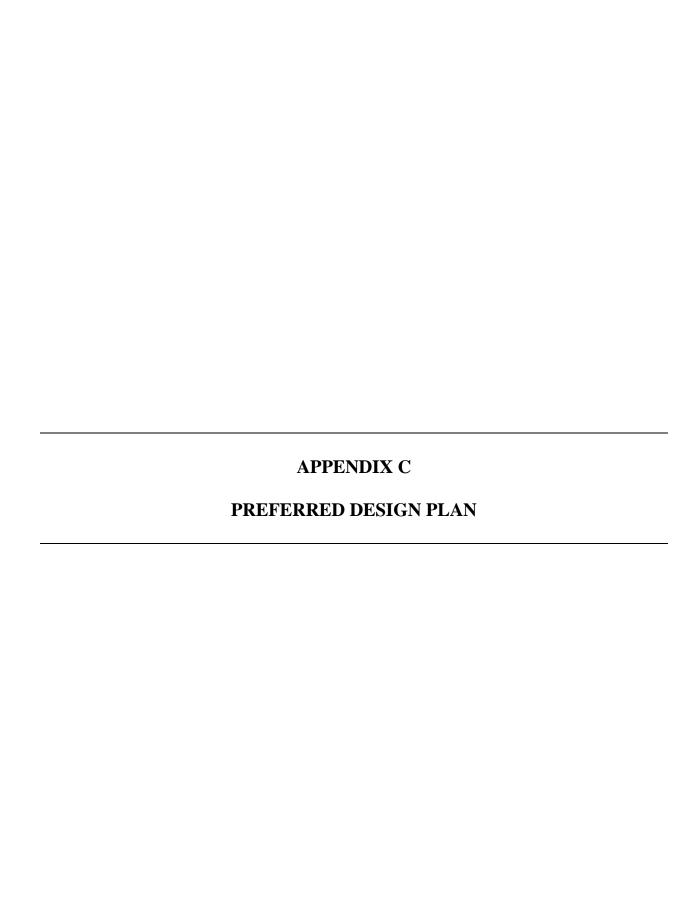
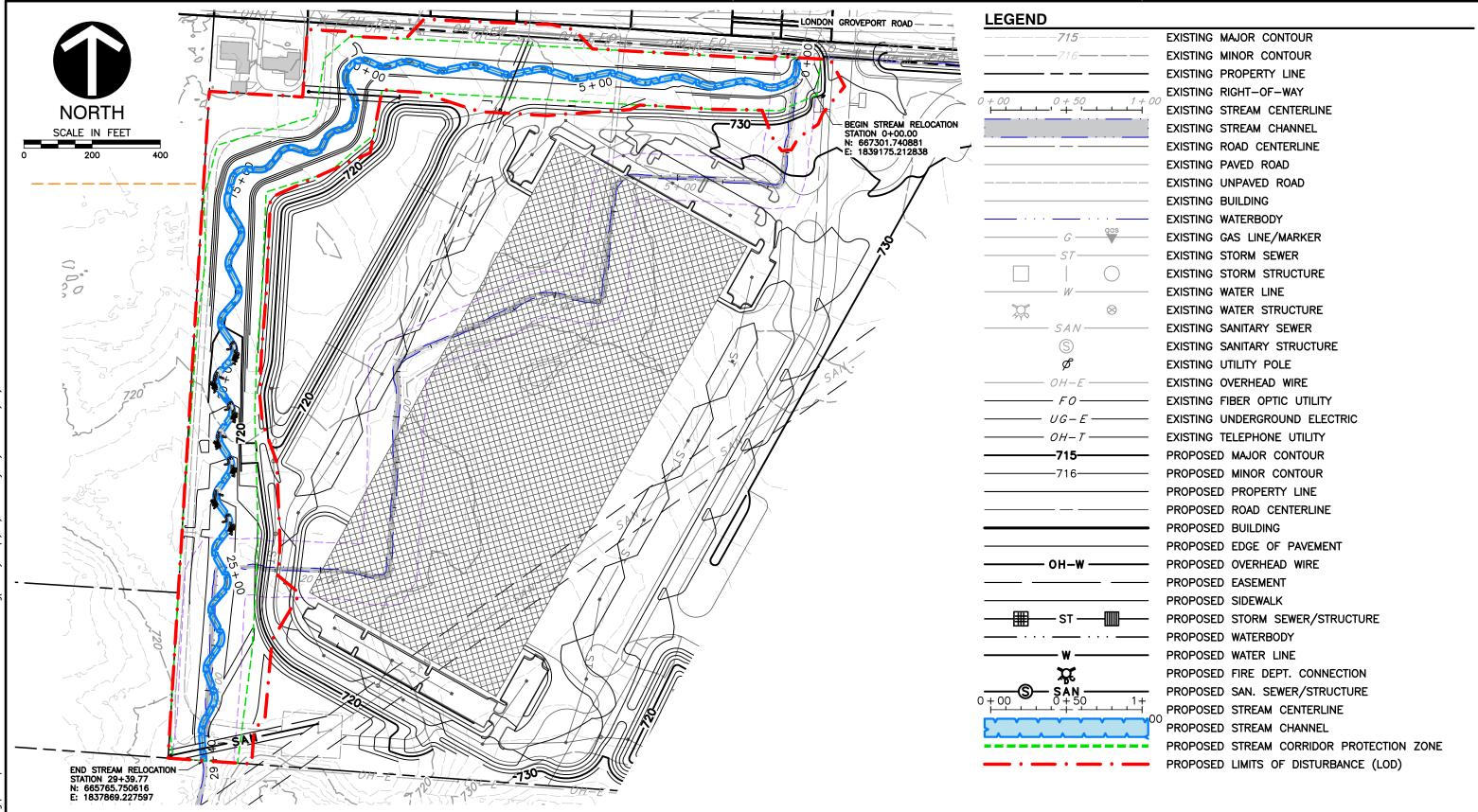


TABLE 1:				
SOCIAL AND ECONOMIC JUSTIFICATION FOR STREAM RELOCATION				
ITEM	PREFERRED DESIGN	MINIMAL IMPACT	NO IMPACT DESIGN	
		DESIGN		
SQUARE FOOT AND	530,291 Sq. Feet of	251,100 Sq. Feet of	260,820 Sq. Feet of	
SPACE USAGE	Warehouse Distribution	Warehouse Distribution	Office Warehouse Space	
	Space	Space		
NEW PERMANENT JOBS	20+over 3 years at	8 over 3 years	11 over 3 years	
	minimum		-	
ESTIMATED PAYROLL	\$624,000	\$295,000	\$305,000	
ESTIMATED PAYROLL	\$124,925	\$81,841	\$66,210	
TAXES/ YEAR				
NEW TEMPORARY JOBS	59.15	27	31	
EST. TEMPORARY	\$5.66 Million	\$2.6 Million	\$3.44 Million	
PAYROLL				
EST. TEMPORARY	\$1.24 Million	\$600,000	\$757,000	
TAXES				
EST. LOCAL PAYROLL	\$523,327	\$219,797	\$277,363	
AND PROPERTY TAXES				
GENERATED PER YEAR				
EST STATE PAYROLL	\$11,357	\$4,770	\$6,019	
TAXES GENERATED				
PER YEAR				





REFERENCE

- 1. PARCEL BOUNDARIES ARE BASED ON TAX PARCEL INFORMATION FROM FRANKLIN COUNTY, OH ON FILE WITH CIVIL AND ENVIRONMENTAL CONSULTANTS, INC. (CEC), ACCESSED 06/18/2020.
- 2. TOPOGRAPHIC INFORMATION IS BASED ON A COMBINATION OF PUBLICLY AVAILABLE DATA FROM OHIO GEOGRAPHICALLY REFERENCED INFORMATION PROGRAM (OGRIP), ACCESSED 06/18/2020, AND DATA PROVIDED BY CLIENT, DATED 11/30/2020.
- AERIAL IMAGERY PROVIDED BY OHIO GEOGRAPHICALLY REFERENCED INFORMATION PROGRAM (OGRIP), ACCESSED 03/15/2021. IMAGERY DATED 2007.



Civil & Environmental Consultants, Inc.

250 Old Wilson Bridge Road · Suite 250 · Worthington, OH 43085 614-540-6633 · 888-598-6808

www.cecinc.com

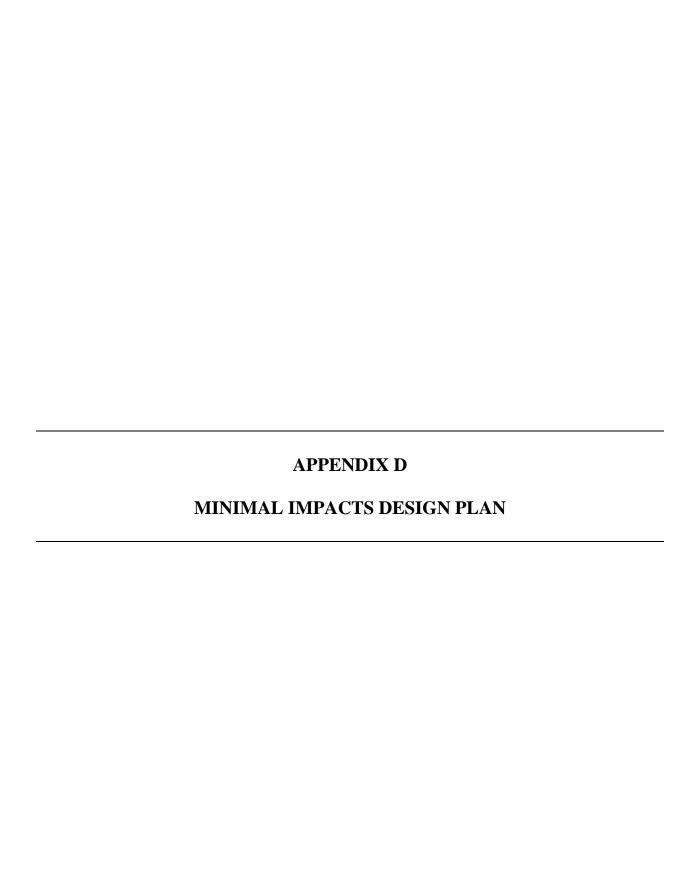
PREFERRED DEVELOPMENT PLAN

EXXCEL PROJECT MANAGEMENT, LLC TALBOTT PROPERTY - WESTERN PORTION

STREAM RELOCATION

FRANKLIN COUNTY, OH

JDH CHECKED BY: JDF APPROVED BY: DRAFT FIGURE NO. DRAWN BY: **APPENDIX C** DATE: APRIL 2021 DWG SCALE: 1" = 200' PROJECT NO:



MINIMAL IMPACT DEVELOPMENT ALTERNATIVE PLAN

EXXCEL PROJECT NUMBER:

20001

SHEET NAME:

CONCEPT SITE

SHEET NO.

2 OF 2

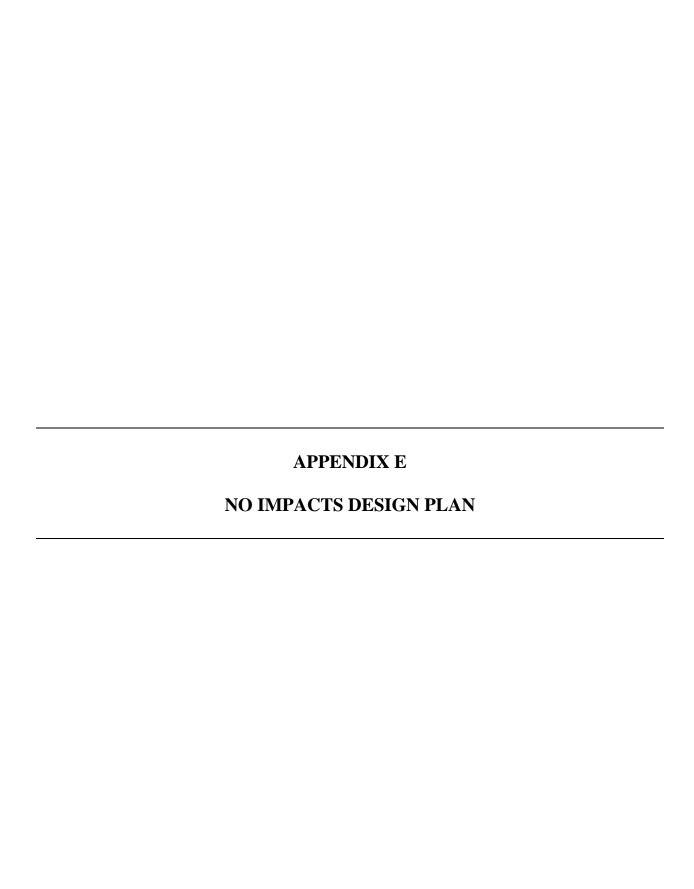
DRAWING DATE:

5/21/21



150'

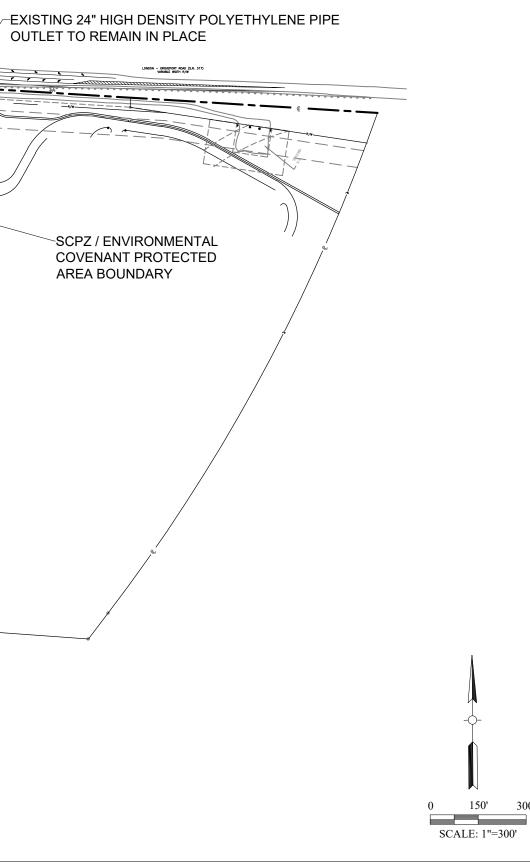
SCALE: 1"=300'

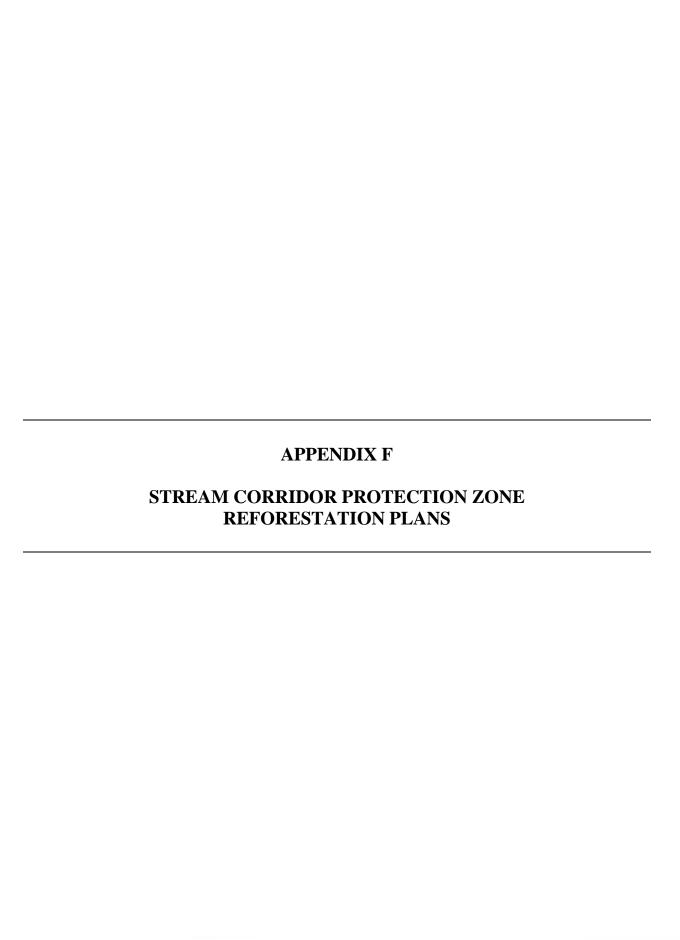


NO IMPACT/DEGRADATION DEVELOPMENT **ALTERNATIVE PLAN**

EXXCEL PROJECT NUMBER: 20001 SHEET NAME: CONCEPT SITE SHEET NO. 1 OF 2 DRAWING DATE: 5/21/21







TALBOTT PROPERTY - WESTERN PORTION STREAM CORRIDOR PROTECTION ZONE REFORESTATION PLANS

STATE OF OHIO, FRANKLIN COUNTY,

TOWNSHIP OF HAMILTON, SECTION 2, TOWNSHIP 3N, RANGE 22W

2021

		DRAWING INDEX
SHEET NO.	DWG. NO.	SHEET TITLE
1	EC000	COVER SHEET
2	EC001	GENERAL NOTES
3	EC200	EXISTING CONDITIONS AND TREE REMOVAL PLAN
4	EC500	PLANTING PLAN OVERVIEW
5	EC501	PLANTING PLAN
6	EC502	REFORESTATION PLAN OVERVIEW
7	EC503	RESFORESTATION PLAN
8	EC504	PLANTING TABLE
9	EC505	STREAM CORRIDOR PROTECTION ZONE REFORESTATION SUMMARY TABLE
10	EC506	STREAM CORRIDOR PROTECTION ZONE REFORESTATION SUMMARY TABLE
11	EC507	STREAM CORRIDOR PROTECTION ZONE REFORESTATION SUMMARY TABLE
12	EC800	DETAILS
13	EC801	DETAILS
14	EC802	DETAILS



IPPER PORTION OF EXISTING STREAM

IMAGE TAKEN BY SEB, 09/24/20



LOWER PORTION OF EXISTING STREAM

IMAGE TAKEN BY SEB, 09/24/2020.

PROJECT CONTACTS

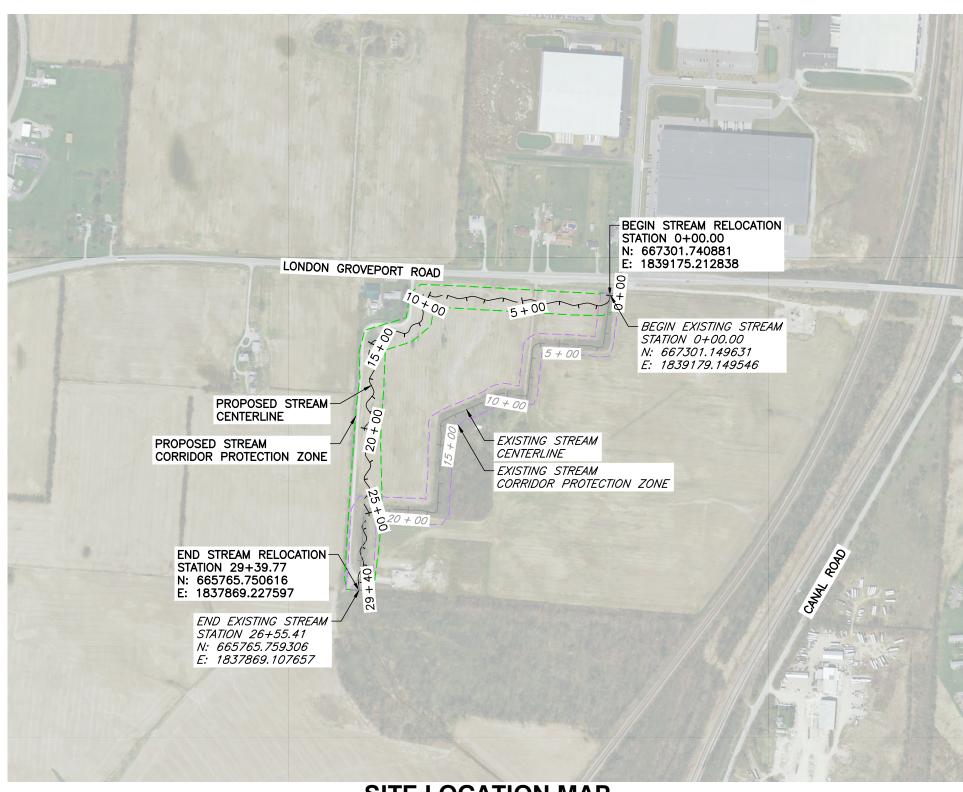
PREPARED FOR

EXXCEL PROJECT MANAGEMENT, LLC.

328 S. CIVIC CENTER DRIVE COLUMBUS, OH 43215 PHONE: (614) 621-4500 CONTACT: JEFF WIATER EMAIL: JWIATER@EXXCEL.COM

PROJECT MANAGER

CIVIL & ENVIRONMENTAL CONSULTANTS, INC. 250 OLD WILSON BRIDGE ROAD, SUITE 250 WORTHINGTON, OH 43085 PHONE: (614) 540-6633 CONTACT: JONATHAN DEMAREST EMAIL: JDEMAREST@CECINC.COM



SITE LOCATION MAP

IMAGE TAKEN FROM OGRIP. ACCESSED 03/15/2021.

SCALE IN FEET

0 500 1000

THE PLANS HAVE BEEN CREATED ON ANSI D FULL BLEED (22" X 34") PAPER. FOR REDUCTIONS, REFER TO GRAPHIC SCALE. WHEN PLOTTED ON 11" X 17" PAPER, THIS PLAN SET WILL NOT BE TO SCALE.

THE PLANS HAVE BEEN CREATED FOR FULL COLOR PLOTTING. ANY SET OF THE PLANS THAT IS NOT PLOTTED IN FULL COLOR SHALL NOT BE CONSIDERED ADEQUATE FOR CONSTRUCTION PURPOSES.

REFERENCE

. PARCEL BOUNDARIES ARE BASED ON TAX PARCEL INFORMATION FROM FRANKLIN COUNTY, OH ON FILE WITH CIVIL AND ENVIRONMENTAL CONSULTANTS, INC. (CEC), ACCESSED 06/18/2020.

- 2. TOPOGRAPHIC INFORMATION IS BASED ON A COMBINATION OF PUBLICLY AVAILABLE DATA FROM OHIO GEOGRAPHICALLY REFERENCED INFORMATION PROGRAM (OGRIP), ACCESSED 06/18/2020, AND DATA PROVIDED BY CLIENT, DATED 11/30/2020.
- 3. AERIAL IMAGERY PROVIDED BY OHIO GEOGRAPHICALLY REFERENCED INFORMATION PROGRAM (OGRIP), ACCESSED 03/15/2021. IMAGERY DATED 2007.

OHIO UTILITIES
PROTECTION SERVICE
1-800-362-2764
Ohio State Law
(ORC Section 3781.28) Requires that you call two business days before you dig in the State of Ohio

IT'S THE LAW!



USGS 8-DIGIT HUC BOUNDARY MAP

PROJECT SITE

UPPER SCIOTO HUC ID: 05060001 NOT TO SCALE DRAWING NO.:

ECOOO

EC000} LS:(6/10/2021 – jhart) – LP: 6/10/2021 12:13 PM O

\\300723-C000-SCPZ Reforestation Cover Sheet.dwgfEC000} LS:(6/10/2021 - jhart) -

| 700_977| __0400| 0wa| F001| 700797_0000

0400\0mg\ECO1\300

UNLESS OTHERWISE EXEMPT, ALL DEVELOPMENT AND REDEVELOPMENT PROJECTS THAT INCLUDE A PORTION OF THE STREAM CORRIDOR PROTECTION ZONE MUST MINIMIZE ALTERATIONS OF THE STREAM, KEEP NEW STRUCTURES OUT OF THE STREAM CORRIDOR PROTECTION ZONE, AND MAINTAIN A RIPARIAN CORRIDOR ALONG THE STREAM TO MINIMIZE STREAMBANK EROSION AND TO PROTECT STREAM HABITAT.

THE STREAM CORRIDOR PROTECTION ZONE SHALL BE KEPT IN AS NATURAL STATE AS POSSIBLE SO THAT IT CAN PERFORM ITS INHERENT FUNCTION OF EROSION PROTECTION, FLOOD STORAGE, AND WATER QUALITY PROTECTION. IN ORDER TO ENSURE THE PERMANENT PROTECTION OF THE ZONE, THE DEVELOPER SHALL PROVIDE FOR THE PERMANENT PROTECTION OF THE ZONE. ALL DISTURBANCES MUST BE MITIGATED THROUGH REFORESTATION AND REVEGETATION.

WHEN REMOVAL IS NECESSARY, THE CONSULTANT OR THE CONTRACTING DEPARTMENT SHALL PREPARE A STREAMBANK RESTORATION PLAN THAT INCORPORATES BIOENGINEERING TECHNIQUES SHALL BE PREPARED FOR COMPENSATORY FLOODPLAIN FILL WORK THAT OCCURS IMMEDIATELY ADJACENT TO THE STREAMBANK. THE STREAMBANK RESTORATION PLAN SHALL BE SUBMITTED TO BE REVIEWED AND APPROVED BY THE RECREATION & PARKS/CITY FORESTER PRIOR TO FINAL CONSTRUCTION PLAN/FINAL SITE COMPLIANCE APPROVAL.

SEDIMENT AND EROSION CONTROLS:

IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN THE SEDIMENTATION AND EROSION CONTROL FEATURES ON THIS PROJECT. ANY SEDIMENT OR DEBRIS THAT HAS REDUCED THE EFFICIENCY OF A CONTROL SHALL BE REMOVED IMMEDIATELY. SHOULD A STRUCTURE OR FEATURE BECOME DAMAGED, THE CONTRACTOR SHALL REPAIR OR REPLACE IMMEDIATELY AND AT NO COST TO THE OWNER.

WEEKLY STREET CLEANING IS REQUIRED THROUGH THE DURATION OF THE CONSTRUCTION PROJECT. THIS INCLUDES SWEEPING, POWER CLEANING, AND MANUAL (IF NECESSARY) REMOVAL OF DIRT OR MUD IN THE

ADDITIONAL EROSION AND SEDIMENT CONTROL MAY BE REQUIRED AS DIRECTED BY THE FRANKLIN COUNTY ENGINEER'S OFFICE AND/OR DESIGNATED REPRESENTATIVE.

INSPECTIONS:
THE NPDES PERMIT HOLDER SHALL PROVIDE QUALIFIED PERSONNEL TO CONDUCT SITE INSPECTIONS ENSURING PROPER FUNCTIONALITY OF THE EROSION AND SEDIMENTATION CONTROLS. ALL EROSION AND SEDIMENTATION CONTROLS ARE TO BE INSPECTED ONCE EVERY SEVEN CALENDAR DAYS OR WITHIN 24 HOURS OF A 0.5—INCH

PROPER FUNCTIONALITY OF THE EROSION AND SEDIMENTATION CONTROLS. ALL EROSION AND SEDIMENTATION CONTROLS ARE TO BE INSPECTED ONCE EVERY SEVEN CALENDAR DAYS OR WITHIN 24 HOURS OF A 0.5—INCH STORM EVENT OR GREATER. SIGNED RECORDS OF THE SITE INSPECTIONS SHALL BE KEPT AND MADE AVAILABLE TO JURISDICTIONAL AGENCIES IF REQUESTED. WEEKLY INSPECTION REPORTS, AS WELL AS, INSPECTION REPORTS AFTER 0.5—INCH RAINFALL EVENTS, SHALL BE FAXED TO THE GENERAL DESC INSPECTOR.

IF THE SITE WILL BE DORMANT FOR A LONG PERIOD, IS STABILIZED, AND LESS FREQUENT INSPECTIONS ARE DESIRED, A WAIVER REQUEST MAY BE SUBMITTED TO THE OEPA FOR A REDUCTION IN MONTHLY INSPECTIONS.

STATE INSPECTION RECORDS WILL BE KEPT ON FILE FOR 3 YEARS AFTER TERMINATION OF CONSTRUCTION ACTIVITIES.

MONITORING OF THE STREAM MITIGATION AREA SHALL BE CONDUCTED ACROSS A FIVE—YEAR PROGRAM, STARTING THE FIRST FULL GROWING SEASON AFTER COMPLETION OF CONSTRUCTION AND AS—BUILT SUBMISSION.

BMPS THAT REQUIRE REPAIR OR MAINTENANCE SHALL BE CLEANED/REPAIRED WITHIN 3 DAYS OF INSPECTION FOR NON-SEDIMENT POND BMPS AND 10 DAYS FOR SEDIMENT PONDS. FOR BMPS NOT MEETING THE INTENDED FUNCTION OR FOUND TO BE MISSING, A NEW BMP SHALL BE INSTALLED IMMEDIATELY.

CONTRACTORS RESPONSIBILITIES:
DETAILS HAVE BEEN PROVIDED ON THIS PLAN IN AN EFFORT TO HELP THE CONTRACTOR PROVIDE EROSION AND SEDIMENT CONTROL. THE DETAILS SHOWN ON THE PLAN SHALL BE CONSIDERED A MINIMUM. ADDITIONAL OR ALTERNATIVE DETAILS MAY BE FOUND IN THE O.D.N.R. MANUAL "RAINWATER AND LAND DEVELOPMENT". THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR PROVIDING NECESSARY AND ADEQUATE MEASURES FOR PROPER CONTROL OF EROSION AND SEDIMENT RUNOFF FROM THE SITE ALONG WITH PROPER MAINTENANCE AND INSPECTION WITH THE NPDES GENERAL PERMIT FOR STORM DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY

THE CONTRACTOR SHALL PROVIDE A SCHEDULE OF OPERATIONS TO THE OWNER. THE SCHEDULE SHOULD INCLUDE A SEQUENCE OF THE PLACEMENT OF THE SEDIMENTATION AND EROSION CONTROL MEASURES THAT PROVIDES FOR CONTINUAL PROTECTION OF THE SITE THROUGHOUT THE EARTH MOVING ACTIVITIES.

PRIOR TO CONSTRUCTION OPERATIONS IN A PARTICULAR AREA, ALL SEDIMENTATION AND EROSION CONTROL FEATURES SHALL BE IN PLACE. FIELD ADJUSTMENTS WITH RESPECT TO LOCATIONS AND DIMENSIONS MAY BE MADE BY THE ENGINEER.

IT MAY BECOME NECESSARY TO REMOVE PORTIONS OF SEDIMENTATION CONTROLS DURING CONSTRUCTION TO FACILITATE THE GRADING OPERATIONS IN CERTAIN AREAS. HOWEVER, THE CONTROLS SHALL BE REPLACED UPON COMPLETION OF GRADING ACTIVITIES OR DURING ANY INCLEMENT WEATHER.

THE CONTRACTOR SHALL BE RESPONSIBLE TO HAVE THE CURRENT STORM WATER POLLUTION PREVENTION PLAN IMMEDIATELY AVAILABLE OR POSTED ON SITE.

THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THAT OFF—SITE TRACKING OF SEDIMENTS BY VEHICLES

AND EQUIPMENT IS MINIMIZED. ALL SUCH OFF-SITE SEDIMENT SHALL BE CLEANED UP DAILY.

THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THAT NO SOLID OR LIQUID WASTE IS DISCHARGED INTO STORMWATER RUNOFF. UNTREATED SEDIMENT-LADEN RUNOFF SHALL NOT FLOW OFF OF SITE WITHOUT BEING DIRECTED THROUGH A CONTROL BMP.

THE COST FOR TEMPORARY CHANNELS, SEDIMENT DAMS, SEDIMENT BASINS, AND OTHER APPURTENANT EARTH MOVING OPERATIONS SHALL BE INCLUDED IN THE PRICE BID FOR EROSION AND SEDIMENTATION CONTROL QUANTITIES.

EROSION/SEDIMENT CONTROLS SHALL BE IMPLEMENTED FOR ALL AREAS REMAINING DISTURBED FOR OVER 14 DAYS. ALL DEWATERING ACTIVITIES SHALL BE DIRECTED TO SEDIMENTATION BMPS. NO TURBID RELEASE FROM THE SITE SHALL OCCUR

ALL WASTE MATERIALS WILL BE COLLECTED AND STORED IN A SECURELY LIDDED METAL DUMPSTER RENTED FROM A LICENSED SOLID WASTE MANAGEMENT COMPANY. THE DUMPSTER WILL MEET ALL LOCAL, CITY AND STATE SOLID WASTE MANAGEMENT REGULATIONS. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE WILL BE DEPOSITED IN THE DUMPSTER. THE DUMPSTER WILL BE EMPTIED A MINIMUM OF TWICE PER WEEK OR MORE OFTEN IF NECESSARY, AND THE TRASH WILL BE HAULED OFF—SITE. NO CONSTRUCTION WASTE MATERIALS WILL BE BURIED ONSITE. ALL PERSONNEL WILL BE INSTRUCTED REGARDING THE CORRECT PROCEDURE FOR WASTE DISPOSAL. NOTICES STATING THESE PRACTICES WILL BE POSTED IN THE OFFICE TRAILER. THE INDIVIDUAL WHO MANAGES THE DAY—TO—DAY SITE OPERATIONS WILL BE RESPONSIBLE FOR SEEING THAT THESE PROCEDURES ARE FOLLOWED. ALL CONSTRUCTION AND DEMOLITION DEBRIS (C&DD) WASTE WILL BE DISPOSED OF IN AN OHIO EPA APPROVED C&DD LANDFILL AS REQUIRED BY ORC 3714.

ALL HAZARDOUS WASTE MATERIALS WILL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL OR STATE REGULATION OR BY THE MANUFACTURER. SITE PERSONNEL WILL BE INSTRUCTED IN THESE PRACTICES. THE INDIVIDUAL WHO MANAGES DAY-TO-DAY SITE OPERATIONS WILL BE RESPONSIBLE FOR SEEING THAT THESE

ALL SANITARY WASTE WILL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF THREE TIMES PER WEEK BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR, AS REQUIRED BY LOCAL REGULATION.

THERE SHALL BE NO TURBID DISCHARGES TO SURFACE WATERS, RESULTING FROM DEWATERING ACTIVITIES.
SEDIMENT-LADEN WATER MUST PASS THROUGH A SETTLING POND, FILTER BAG, OR OTHER COMPARABLE
PRACTICE. PRIOR TO DISCHARGE.

ALL PROCESS WASTEWATER (EQUIPMENT WASHING, LEACHATE FROM ON-SITE WASTE DISPOSAL, ETC.) SHALL BE COLLECTED AND DISPOSED OF AT A PUBLICLY OWNER TREATMENT PLANT.

SEDIMENT AND EROSION CONTROLS NOTES

- 1. SILTATION AND EROSION SHALL BE CONTROLLED BY MINIMIZING THE TIME THE SITE IS DENUDED BY TEMPORARY SEEDING. PERMANENT SEEDING, AND THE USE OF VARIOUS EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMP'S). THESE DEVICES ARE TO BE MAINTAINED THROUGHOUT THE CONSTRUCTION PHASE OF THIS PROJECT. ONCE THE SITE AREA HAS BEEN STABILIZED, BEST MANAGEMENT PRACTICES SHALL BE REMOVED WITH THE APPROVAL OF THE COUNTY ENGINEER.
- 2. ALL MEASURES SHALL BE MAINTAINED UNTIL ALL CONSTRUCTION UNDER THE CONTRACT HAS BEEN COMPLETED AND ACCEPTED BY THE CITY OF COLUMBUS ENGINEER. MAINTENANCE SHALL INCLUDE ALL REPAIRS TO THOSE AREAS AND MEASURES DAMAGED BY EROSION, CONSTRUCTION EQUIPMENT, WEATHER, FIRE, AND/OR OTHER CAUSES INCLUDING "ACTS OF GOD".
- 3. THE TEMPORARY CONSTRUCTION ENTRANCES SHALL BE MAINTAINED IN A STATE THAT SHALL PREVENT TRACKING OR FLOW OF MUD ONTO THE PUBLIC RIGHT-OF-WAY. THIS WILL BE ACCOMPLISHED BY USE OF A GRAVEL CONSTRUCTION ENTRANCE AND THE REPAIR AND/OR CLEANOUT OF ANY DEVICES USED TO TAP THE SEDIMENT. ANY MATERIALS SPILLED, DROPPED, OR TRACKED FROM THE CONSTRUCTION SITE ONTO THE ROADWAYS OR INTO THE STORM SEWER SYSTEM MUST BE REMOVED IMMEDIATELY.
- 4. SEDIMENT DEPOSITS IN SEDIMENT TRAPS SHALL BE REMOVED AND THE MEASURES RESTORED TO THEIR ORIGINAL DESIGN PRIOR TO THE SEDIMENT OBTAINING THE ONE—HALF DESIGN HEIGHT OF THE DEVICE. ALL SEDIMENT MATERIAL SHALL BE DISPOSED OF BY AN ACCEPTABLE MEANS. ANY SEDIMENT PREPARED TO CONFORM TO THE FINAL GRADING PLANS, SEEDED AND MULCHED.
- 5. THE CONTRACTOR SHALL NOT DISTURB AREAS OUTSIDE CONSTRUCTION LIMITS UNLESS AUTHORIZED BY THE PROPERTY OWNER.
- 6. THE CONTRACTOR WILL DISPOSE OF STOCKPILE EXCAVATION AS DIRECTED BY THE ENGINEER.
- 7. THE SITE SHALL BE INSPECTED ONCE EVERY SEVEN CALENDAR DAYS OR WITHIN 24 HOURS OF A 0.5-INCH STORM EVENT OR GREATER. SIGNED RECORDS OF THE SITE INSPECTIONS SHALL BE KEPT AND MADE AVAILABLE TO JURISDICTIONAL AGENCIES IF REQUESTED. WEEKLY INSPECTION REPORTS, AS WELL AS, INSPECTION REPORTS AFTER 0.5-INCH RAINFALL EVENTS, SHALL BE FAXED TO GENERAL DESC INSPECTOR.
- 8. CLOSE ATTENTION SHALL BE PAID TO THE PROPER INSTALLATION AND REPAIR OF PERIMETER CONTROLS TO PREVENT FAILURE.
- 9. NECESSARY REPAIRS TO BARRIERS OR REPLACEMENT CONTROLS SHALL BE ACCOMPLISHED PROMPTLY.
- 10. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE PERIMETER CONTROLS ARE NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED.
- 11. ADDITIONAL EROSION AND SEDIMENT CONTROL BMP'S SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER.
- 12. THE CONSTRUCTION ENTRANCES, AND PERIMETER CONTROLS SHALL BE INSTALLED AS THE FIRST STEP OF THE CONSTRUCTION SEQUENCE.
- 13. NO WORK SHALL COMMENCE UNTIL THE EROSION AND SEDIMENT CONTROLS ARE APPROVED BY THE GOVERNING AUTHORITIES.

GENERAL LAND CONSERVATION NOTES

NO DISTURBED AREA WILL BE DENUDED FOR MORE THAN 7 DAYS IF IT IS TO REMAIN DORMANT FOR MORE THAN 21 DAYS AND NO MORE THAN 14 DAYS FROM THE LAST CONSTRUCTION ACTIVITY IN THAT AREA, UNLESS AUTHORIZED BY THE GOVERNING JURISDICTION'S INSPECTOR. PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DISTURBED AREAS WITHIN 7 DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE OR WITHIN 2 DAYS FOR AREAS WITHIN 50 FEET OF A STREAM.

ALL STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE PLACED PRIOR TO, OR AS THE FIRST STEP IN, GRADING FOR ALL SITES.

ALL TEMPORARY DIVERSIONS AND EARTH STOCKPILES SHALL BE SEEDED AND MULCHED FOR TEMPORARY VEGETATIVE COVER WITHIN 7 DAYS AFTER GRADING. STRAW, HAY, MULCH OR EQUIVALENT IS REQUIRED.

ANY DISTURBED AREA NOT STABILIZED WITH SEEDING OR SODDING BY NOVEMBER 1ST, OR AREAS DISTURBED AFTER THAT DATE, SHALL BE MULCHED IMMEDIATELY WITH HAY OR STRAW AT THE RATE OF 2 TONS PER ACRE AND OVER-SEEDED BY APRIL 15TH.

AT THE COMPLETION OF CONSTRUCTION, ALL TEMPORARY SEDIMENT CONTROLS SHALL BE REMOVED AND ALL DENUDED AREAS SHALL BE STABILIZED.

INSPECTIONS SHALL BE MADE A MINIMUM OF WEEKLY OR BI-WEEKLY AND AFTER EACH RAINFALL EVENT EXCEEDING ONE-HALF INCH.

STABILIZATION TYPE	J	F	М	Α	М	J	J	Α	S	0	N	D
PERMANENT SEEDING						*	*	*				
DORMANT SEEDING												
TEMPORARY SEEDING						*	*	*				
SODDING			**	**	**	**	**	**	**			
MULCHING												

* - IRRIGATION NEEDED

** - IRRIGATION NEED FOR 2-3 WEEKS AFTER SOD IS APPLIED

SITE CLEANUP & RECYCLE PROGRAM

ALL BUILDING MATERIALS AND WASTES SHALL BE REMOVED FROM THE SITE AND RECYCLED OR DISPOSED OF IN ACCORDANCE WITH THE OHIO ENVIRONMENTAL PROTECTION AGENCY'S REGULATIONS. NO BUILDING MATERIALS OR WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURNED, BURIED, DUMPED OR DISCHARGED AT THE SITE. CONSTRUCTION WASTES ARE REFUSE MATERIALS THAT ARE EXISTING ONSITE OR GENERATED DURING THE COURSE OF CONSTRUCTION AND INCLUDE, BUT ARE NOT LIMITED TO, PAPER, PLASTIC, RUBBER, WOOD, TEXTILE, METAL PRODUCTS, AND ALL CONSTRUCTION WATER ASSOCIATED WITH THE TEMPORARY E&S CONTROL BMPS (I.E. COMPOST FILTER SOCK, INLET PROTECTION, ETC.)

INSTALLATION: THE CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING WASTE RECYCLING/DISPOSAL AREAS ON THE E&S PLAN ONCE THEY HAVE BEEN DETERMINED. PLACE WASTE DISPOSAL STOCKPILES UPSTREAM OF TEMPORARY E&S CONTROL MEASURES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL WASTE RECYCLING/DISPOSAL PERMITS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES.

MAINTENANCE: ALL CONSTRUCTION WASTE SHALL BE REMOVED BY THE CONTRACTOR AND DISPOSED OF AT A STATE-APPROVED WASTE SITE AND IN ACCORDANCE WITH ALL LOCAL AND STATE CODES AND PERMIT REQUIREMENTS. THE BURNING OF WASTE MATERIALS IS NOT PERMITTED.

<u>DUST CONTROL</u>:

DUST CONTROL INVOLVES PREVENTING OR REDUCING DUST FROM EXPOSED SOILS OR OTHER SOURCES DURING LAND DISTURBING, DEMOLITION AND CONSTRUCTION ACTIVITIES TO REDUCE THE PRESENCE OF AIRBORNE SUBSTANCES WHICH MAY PRESENT HEALTH HAZARDS, TRAFFIC SAFETY PROBLEMS OR HARM ANIMAL OR PLAN

THE FOLLOWING SPECIFICATIONS FOR DUST CONTROL SHALL BE FOLLOWED ONSITE:

- 1. <u>VEGETATIVE COVER AND/OR MULCH</u> APPLY TEMPORARY OR PERMANENT SEEDING AND MULCH TO AREAS THAT WILL REMAIN IDLE FOR OVER 21 DAYS. SAVING EXISTING TREES AND LARGE SHRUBS WILL ALSO REDUCE SOIL AND AIR MOVEMENT ACROSS DISTURBED AREAS. SEE TEMPORARY SEEDING; PERMANENT SEEDING; MULCHING PRACTICES; AND TREE AND NATURAL AREA PROTECTION PRACTICES.
- 2. <u>WATERING</u> SPRAY SITE WITH WATER UNTIL THE SURFACE IS WET BEFORE AND DURING GRADING AND REPEAT AS NEEDED, ESPECIALLY ON HAUL ROADS AND OTHER HEAVY TRAFFIC ROUTES. WATERING SHALL BE DONE AT A RATE THAT PREVENTS DUST BUT DOES NOT CAUSE SOIL EROSION. WETTING AGENTS SHALL BE UTILIZED ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.
- 3. STONE GRADED ROADWAYS AND OTHER SUITABLE AREAS WILL BE STABILIZED USING CRUSHED STONE OR COARSE GRAVEL AS SOON AS PRACTICABLE AFTER REACHING AN INTERIM OR FINAL GRADE. CRUSHED STONE OR COARSE GRAVEL CAN BE USED AS A PERMANENT COVER TO PROVIDE CONTROL OF SOIL EMISSIONS.
- 4. <u>BARRIERS</u> EXISTING WINDBREAK VEGETATION SHALL BE MARKED AND PRESERVED. SNOW FENCING OR OTHER SUITABLE BARRIERS MAY BE PLACED PERPENDICULAR TO PREVAILING AIR CURRENTS AT INTERVALS OF ABOUT 15 TIMES THE BARRIER HEIGHT TO CONTROL AIR CURRENTS AND BLOWING SOIL.
- 5. <u>CALCIUM CHLORIDE</u> THIS CHEMICAL MAY BE APPLIED BY MECHANICAL SPREADER AS LOOSE, DRY GRANULES OR FLAKES AT A RATE THAT KEEPS THE SURFACE MOIST BUT NOT SO HIGH AS TO CAUSE WATER POLLUTION OR PLANT DAMAGE. APPLICATION RATES SHOULD BE STRICTLY IN ACCORDANCE WITH SUPPLIERS' SPECIFIED RATED.
- 6. <u>OPERATION AND MAINTENANCE</u> WHEN TEMPORARY DUST CONTROL MEASURES ARE USED; REPETITIVE TREATMENT SHOULD BE APPLIED AS NEEDED TO ACCOMPLISH CONTROL.
- 7. <u>STREET CLEANING</u> PAVED AREAS THAT HAVE ACCUMULATED SEDIMENT FROM CONSTRUCTION VEHICLES/TRUCKS SHOULD BE CLEANED DAILY, OR AS NEEDED, UTILIZING A STREET SWEEPER OR BUCKET TYPE END LOADER OR SCRAPER.

SEEDING AND MULCHING

THE SEEDING, EITHER PERMANENT OR TEMPORARY SHALL COMMENCE WITHIN 7 DAYS AFTER COMPLETION OF GRADING ACTIVITIES IS COMPLETED.

THE CONTRACTOR SHALL FURNISH ALL LABOR, EQUIPMENT, AND MATERIALS REQUIRED TO ACCOMPLISH BOTH TEMPORARY AND PERMANENT SEEDING.

ALL DITCHES, DIVERSIONS, SEDIMENT BASINS/TRAPS, RIGHT-OF-WAY AREAS, AND AREAS DISTURBED DURING CONSTRUCTION SHALL BE SEEDED AND MULCHED, OR SODDED.

THE LIMITS OF SEEDING AND MULCHING ARE AS SHOWN ON THE PLAN. SEEDING HAS BEEN ASSUMED A DISTANCE OF 5 FEET OUTSIDE THE WORK LIMITS OR RIGHT—OF—WAY, WHICHEVER IS GREATER. ALL AREAS NOT DESIGNATED TO BE SODDED SHALL REMAIN UNDER EXISTING GROUND COVER. THOSE AREAS DISTURBED OUTSIDE THE SEEDING LIMITS SHALL BE SEEDED AND MULCHED AT THE CONTRACTOR'S EXPENSE.

PAYMENT FOR TEMPORARY SEEDING SHALL BE INCLUDED UNDER "EROSION CONTROL".

OTHER EROSION AND SEDIMENT CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL THEY ARE ORDERED REMOVED BY THE ENGINEER OR AS DIRECTED BY THE "SEQUENCE OF CONSTRUCTION".

INSTALLATION:

- A. GRADE AS NEEDED AND FEASBILE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION AND ANCHORING, AND MAINTENANCE. AFTER THE GRADING OPERATION SPREAD TOPSOIL WHERE NEEDED.
- B. WHERE COMPACTED SOILS OCCUR, THEY SHOULD BE BROKEN UP SUFFICIENTLY TO CREATE A FAVORABLE ROOTING DEPTH OF 6-8 INCHES.
- C. FOR PERMANENT SEEDING, PLACE TOPSOIL TO A DEPTH OF 4 INCHES MINIMUM.
- D. APPLY THE SEED UNIFORMLY WITH A CYCLONE SEEDER, DRILL, CULTIPACKER SEEDER OR HYDROSEEDER (SLURRY MAY INCLUDE SEED AND FERTILIZER) PREFERABLY ON A FIRM, MOIST SEEDBED. SEED WHEAT OR RYE NO DEEPER THAN ONE INCH. SEED RYEGRASS NO DEEPER THAN ONE—FOURTH INCH.
- E. WHEN FEASIBLE, EXCEPT WHERE A CULTIPACKER TYPE SEEDER IS USED, THE SEEDBED SHOULD BE FIRMED FOLLOWING SEEDING OPERATIONS WITH A CULTIPACKER, ROLLER, OR LIGHT DRAG. ON SLOPING LAND, SEEDING OPERATIONS SHOULD BE ON THE CONTOUR WHEREVER POSSIBLE.
- F. APPLY MULCH AT A RATE OF TWO TONS PER ACRE OR 90 POUNDS (TWO TO THREE BALES) PER 1,000
- G. SPREAD THE MULCH UNIFORMLY BY HAND OR MECHANICALLY SO THE SOIL SURFACE IS COVERED.
- H. ANCHOR MULCH BY ONE OF THE FOLLOWING METHODS:
- 1. MECHANICAL USE A DISK, CRIMPER, OR SIMILAR TYPE TOOL SET STRAIGHT TO PUNCH OR ANCHOR THE MULCH MATERIAL INTO THE SOIL.
- 2. MULCH NETTINGS USE ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. USE IN AREAS OF WATER CONCENTRATION TO HOLD MULCH IN PLACE.
- A. IRRIGATION IF SOIL MOISTURE IS DEFICIENT, SUPPLY NEW SEEDINGS WITH ADEQUATE WATER FOR PLANT GROWTH UNTIL THEY ARE FIRMLY ESTABLISHED. THIS IS ESPECIALLY TRUE WHEN SEEDINGS ARE MADE LATE IN THE PLANTING SEASON, IN ABNORMALLY DRY AND HOT SEASONS, OR ON ADVERSE SITES.
- B. REPAIRS INSPECT ALL SEEDED AREAS FOR FAILURES AND MAKE NECESSARY REPAIRS, REPLACMENTS, RESEEDINGS, AND REMULCHING WITHIN THE PLANTING SEASON, IF POSSIBLE.
- 1. IF STAND IS INADEQUATE, OVERSEED AND FERTILIZE, USING HALF OF THE RATES ORIGINALLY APPLIED, AND MUI CH.
- 2. IF STAND IS OVER 60 PERCENT DAMAGED, REESTABLISH FOLLOWING SEEDBED PREPARATION, SEEDING RECOMMENDATIONS, AND MULCHING RECOMMENDATIONS.

PLANTING NOTES

SQUARE FEET.

1. GENERAL

- 1.1. THE PLANTING SHOULD BE COMPLETED ACCORDING TO THE PLAN AND SPECIFICATIONS THAT HAVE BEEN PREPARED IN THIS CONSTRUCTION PACKAGE. ALL SPECIFICATIONS CAN BE MODIFIED AND/OR ADJUSTED DEPENDING ON THE SITE—SPECIFIC CONDITIONS AND/OR PLANT AVAILABILITY UPON ARRIVAL FROM CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
- 1.2. PLANTS MAY REQUIRE ADDITIONAL CARE IMMEDIATELY FOLLOWING THROUGHOUT ONE GROWING SEASON (MID-APRIL TO LATE OCTOBER). STANDARD HORTICULTURE PRACTICES SUCH AS WATERING, MULCHING, AND FERTILIZER SHOULD BE COMPLETED DURING THIS TIME, AS NECESSARY.
- 1.3. SIMILAR SUBSTITUTE PLAN SPECIES CAN BE USED IF THE SPECIFIED SPECIES ARE NOT AVAILABLE. SUBSTITUTE SPECIES MUST BE APPROVED BY THE PROJECT ENGINEER.2. QUALITY
- 2.1. THE SUPPLIER OF ALL SEEDS AND/OR VEGETATION SHALL CERTIFY THAT ORIGIN OF THE SEEDS FROM WHICH THE PLANTS OR SEEDS WERE PRODUCED IS FROM HARDINESS ZONES 5, 6, OR 7, FROM THE EASTERN OR CENTRAL PORTIONS OF THE U.S., PRIOR TO PLANTING.
- 2.2. ENGAGE AN EXPERIENCED CONTRACTOR/INSTALLER, WHO HAS SUCCESSFULLY COMPLETED PLANTING PROJECTS SIMILAR IN SIZE AND COMPLEXITY TO THIS PROJECT.
- 2.3. INSTALLER TO MAINTAIN AN EXPERIENCED FULL—TIME SUPERVISOR ON THE PROJECT SITE WHEN PLANTING IS IN PROGRESS.
- 2.4. STOCK FURNISHED SHALL BE AT LEAST THE MINIMUM SIZE INDICATED. LARGER STOCK IS ACCEPTABLE AS LONG AS QUALITY AND VARIETY IS MAINTAINED AND DOES NOT PRESENT PROBLEMS WITH THE INSTALLATION PROCESS.
- 3. PRODUCT HANDLING, STORAGE, AND DELIVERY
- 3.1. HANDLE PLANTING STOCK BY ROOT BALL
 3.1.1. HANDLE ALL PLANT STOCK SO THAT THE ROOTS OR ROOT-BALLS ARE ADEQUATELY PROTECTED FROM BREAKAGE, DIRECT SUN, WARM AIR, AND DRYING WINDS. CONTAINERIZED STOCK SHOULD BE WATERED
- 3.2. ALL PLANT MATERIAL SHALL BE TRANSPORTED AND STORED IN SUCH A WAY TO PREVENT ANY PHYSICAL DAMAGE
- 3.2.1. PROTECT BARK, BRANCHES, AND ROOT SYSTEMS FROM SUN SCALD, DRYING, SWEATING, WHIPPING, STRONG WINDS, AND OTHER HANDLING AND TYING DAMAGE.
 3.2.2. IF PLANTING IS DELAYED MORE THAN 6 HOURS AFTER DELIVERY, SET PLANT MATERIALS IN SHADE,

FREQUENTLY TO KEEP SOIL MOIST. PLANTS WITH DRIED OUT TOPS OR ROOTS SHALL BE REJECTED.

PROTECT FROM WEATHER AND MECHANICAL DAMAGE, AND KEEP ROOTS MOIST AND FREE FROM

- 3.3. DO NOT BEND OR BIND—TIE TREES OR SHRUBS IN SUCH A MANNER AS TO DESTROY THEIR NATURAL SHAPE. PROVIDE PROTECTIVE COVERING OF PLANTS DURING DELIVERY. DO NOT DROP PLANTS DURING
- 3.4. PRUNE ROOT STOCK AS NECESSARY BEFORE INSTALLATION.

PLANTING NOTES (CONTINUED)

- 3.5. MATERIAL SHALL BE PLANTED ACCORDING TO THE DETAILS PROVIDED ON SHEETS EC800 THROUGH EC804. THE USE OF A PUNCH/PLANTING BAR, AUGER, REBAR, OR WATER-JET MAY BE USED TO PREDRILL HOLE IF NECESSARY. TAMP SOIL AROUND STAKE FOLLOWING INSTALLATION.
- 3.6. PLANTING OF BARE ROOT TREE AND SHRUB SEEDLINGS (TUBELINGS) IS PERMITTED BETWEEN THE DATES OF NOVEMBER 1ST AND DECEMBER 15TH, ABND FEBRUARY 15TH TO APRIL 15TH. THESE DATES FOR PLANTING MAY NOT BE MODIFIED UNLESS APPROVED IN ADVANCE BY CEC. THE SURVIVAL OF SPECIMENS PLANTED OUTSIDE OF THESE DATES WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- 3.7. ALL BARE ROOT PLANTS SHALL BE SET STRAIGHT OR PLUMB FOR AN UPRIGHT GROWTH PATTER. SET CONTAINERIZED PLANT MATERIALS PLUMB AND CENTERED WITHIN HOLE, ENSURING THAT THE TOP OF THE ROOT BALL IS ELEVATED 2 TO 3 INCHES ABOVE THE SURROUNDING SOIL ELEVATIONS. THE PLANTING HOLES SHALL BE BACKFILLED WITH THE SAME SOIL THAT WAS EXCAVATED FROM THE HOLE AFTER REMOVING ALL STONES, ROOTS, AND OTHER DEBRIS GREATER THAN 2 INCHES IN DIAMETER. AFTER BACKFILLING THE HOLE, ALL PLANTED SPECIES SHOULD BE WATERED TO THE POINT OF SOIL SATURATION IF NOT PLANTED IN AN EXISTING WET CONDITION.
- 3.7.1. EXAMINE THE ROOTS IN ENSURE THEY ARE NOT POT BOUND, AND CAREFULLY SEPARATE ANY CRAMPED ROOTS AND SPREAD THEM OUT WHEN PLACING THE PLANT IN THE HOLE SO THAT THE ROOTS CAN GROW WITHOUT FURTHER CONSTRICTION OF THE ROOT BALL.
- 3.7.2. RAKE THE UNUSED EXISTING SOIL OUTSIDE THE PLANTING HOUSE, TAKING CARE NOT TO MOUND THE SOIL OR SIGNIFICANTLY ALTER THE EXISTING GRADES.
- 3.8. COMMERCIALLY SUPPLIED OR FIELD HARVESTED LIVE STAKES SHALL BE AT LEAST ONE YEAR OLD, AND SHALL BE HARVESTED AND TRANSPORTED WHEN PLANTS ARE DORMANT (NOV. 1 MARCH 1).
- 3.8.1. THE SIZE OF STAKES SHALL RANGE FROM 1/2 INCH TO 1 INCH IN CALIPER AND AVERAGE 24 INCHES IN LENGTH WITH A MINIMUM PLANTED LENGTH OF 24 INCHES. SIDE BRANCHES SHALL BE REMOVED WITH THE REMAINING BARK INTACT. THE BOTTOM (BASAL) END SHALL BE CLEANLY CUT AT A 45 DEGREE OR SHARPER ANGLE AND THE TOP END SHOULD BE CUT SQUARE (FLAT), PROTRUDING NO MORE THAN SIX INCHES.

4. SITE PREPARATION

CLAY LOAM SOILS.

- 4.1. EXAMINE THE SUBGRADE AND TOPSOIL, VERIFY THE ELEVATIONS, AND OBSERVE THE CONDITIONS UNDER WHICH WORK IS TO BE PERFORMED.
- 4.2. COMPACTED SOIL SHALL BE RAKED, DISKED, OR AMENDED AS NECESSARY TO FACILITATE WATER INFILTRATION AND ROOT GROWTH.
- 4.3. ALL SOIL AMENDMENTS AND CONDITIONING SHALL BE COMPLETED PRIOR TO SEEDING AND PLANT MATERIAL INSTALLATION. DO NOT PROCEED WITH INSTALLATION UNTIL UNSATISFACTORY CONDITIONS HAVE

BEEN CORRECTED IN A MANNER ACCEPTABLE TO THE ENGINEER

- 4.4. SOIL MEDIUM FOR PLANTING SHALL BE FREE OF ANY ROCK FRAGMENTS LARGER THAN TWO INCHES IN SIZE, OR LARGE WOODY DEBRIS FRAGMENTS, AND BE COMPRISED PREDOMINANTLY OF LOAM TO SILTY
- 4.5. PLANTS SHALL BE INSTALLED IN UNFROZEN SOIL CONDITIONS (OCTOBER 1 THROUGH DECEMBER 15 OR MARCH 1 THROUGH MAY 31) AND OUTSIDE OF POTENTIAL FROST. PLANT INSTALLATION OUTSIDE OF THIS TIME PERIOD SHALL NOT OCCUR UNLESS APPROVED BY THE PROJECT ENGINEER AND MAY REQUIRE ADDITIONS TO THE SCOPE OF WORK, SUCH AS WATERING REGIMES, MULCHING, OR ADDITIONAL PLANT QUANTITIES.

5. SEEDING

- 5.1. THE OPTIMAL TIME TO INSTALL SEED IS FROM THE FALL (SEPTEMBER 1) TO LATE SPRING (MAY 31). TREAT WEEDS OR OTHER UNWANTED VEGETATION AS NEEDED PRIOR TO SEEDING AND PLANTING.
- 5.2. DO NOT USE WET SEED, SEED THAT IS MOLDY, OR OTHERWISE DAMAGED IN TRANSIT OR STORAGE. SEED SHOULD BE CLEAN AND DRY.
- 5.3. RAKE SEED LIGHTLY INTO THE TOP 1/4 TO 1/2 INCH OF TOPSOIL, ROLL LIGHTLY, AND WATER WITH A
- 5.4. PROTECT SEEDED AREAS AGAINST EROSION BY SPREADING STRAW MULCH IMMEDIATELY FOLLOWING COMPLETION OF SEEDING OPERATIONS IF OTHER EROSION CONTROL MEASURES ARE NOT OTHERWISE SPECIFIED.

6. HERBICIDE APPLICATION

6.1. EXISTING AREAS WITH SUBSTANTIAL COVERAGE OF INVASIVE SPECIES SHALL BE SPRAYED WITH GLYPHOSATE (ROUDNUP® OR APPROVED EQUAL), SURFACTANT, AND AMMONIUM SULFATE MIX AT A RATE OF 1 QUART GLYPHOSATE PER ACRE, 7 OUNCES OF SURFACTANT, AND 17 POUNDS PER 100 GALLONS OF WATER OR AMMONIUM SULFATE. COOL SEASON GRASS ERADICATION REQUIRES ONE APPLICATION IN THE FALL AND ON IN THE SPRING. GRASS SHOULD BE ALLOWED TO GROW 6 INCHES, EITHER AFTER MOWING OR FROM SPRING GROWTH, TO WEAKEN THE PLANT AND PROVIDE MAXIMUM SURFACE AREA FOR

TREE PROTECTION DURING CONSTRUCTION

TREES, TREE ROOTS AND LIMBS INCLUDED WITHIN THE CONSTRUCTION LIMITS OF THE PROJECT SHALL BE PROTECTED AGAINST INJURY OR DAMAGE DURING THE COURSE OF WORK. SPECIAL ATTENTION SHALL BE PAID TO BRANCHES, TRUNKS, AND ROOTS DURING CONSTRUCTION.

THE CONTRACTOR SHALL FOLLOW THE MOST RECENT EDITION OF THE "AMERICAN NATIONAL STANDARDS INSTITUTE" (ANSI) A300 STANDARDS IN EFFECT AT THE TIME THE CONTRACT IS EXECUTED, WHICH ARE THE GENERALLY ACCEPTED INDUSTRY STANDARDS FOR TREE CARE PRACTICES. ANY WORK INVOLVING TREE CARE SHALL BE SUPERVISED BY AN "INTERNATIONAL SOCIETY OF ARBORICULTURE" (ISA) CERTIFIED ARBORIST.

ANY TREES DAMAGE OR DESTROYED DUE TO CONTRACTOR NEGLIGENCE SHALL BE TREATED OR REMOVED AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL, AT THE CONTRACTOR'S EXPENSE, REPLACE THE DESTROYED TREES PER THE CITY'S TREE PROTECTION AND MITIGATION POLICY AS PART OF THE WORK.

THE STANDARDS CAN BE FOUND AT THE DEPARTMENT OF RECREATION AND PARKS FORESTRY SECTION OFFICE

DEPARTMENT OF RECREATION AND PARKS, FORESTRY SECTION 1533 ALUM INDUSTRIAL DR. W COLUMBUS, OHIO 43209

614-645-6640

OR CAN BE PURCHASED ONLINE.

tal Consultants, Inc.

Civil & Environmenta
250 Old Wilson Bridge Road · Suite

L PROJECT MANAGEMENT, TALBOTT PROPERTY WESTERN PORTION PZ REFORESTATION PLAN FRANKLIN COUNTY, OH

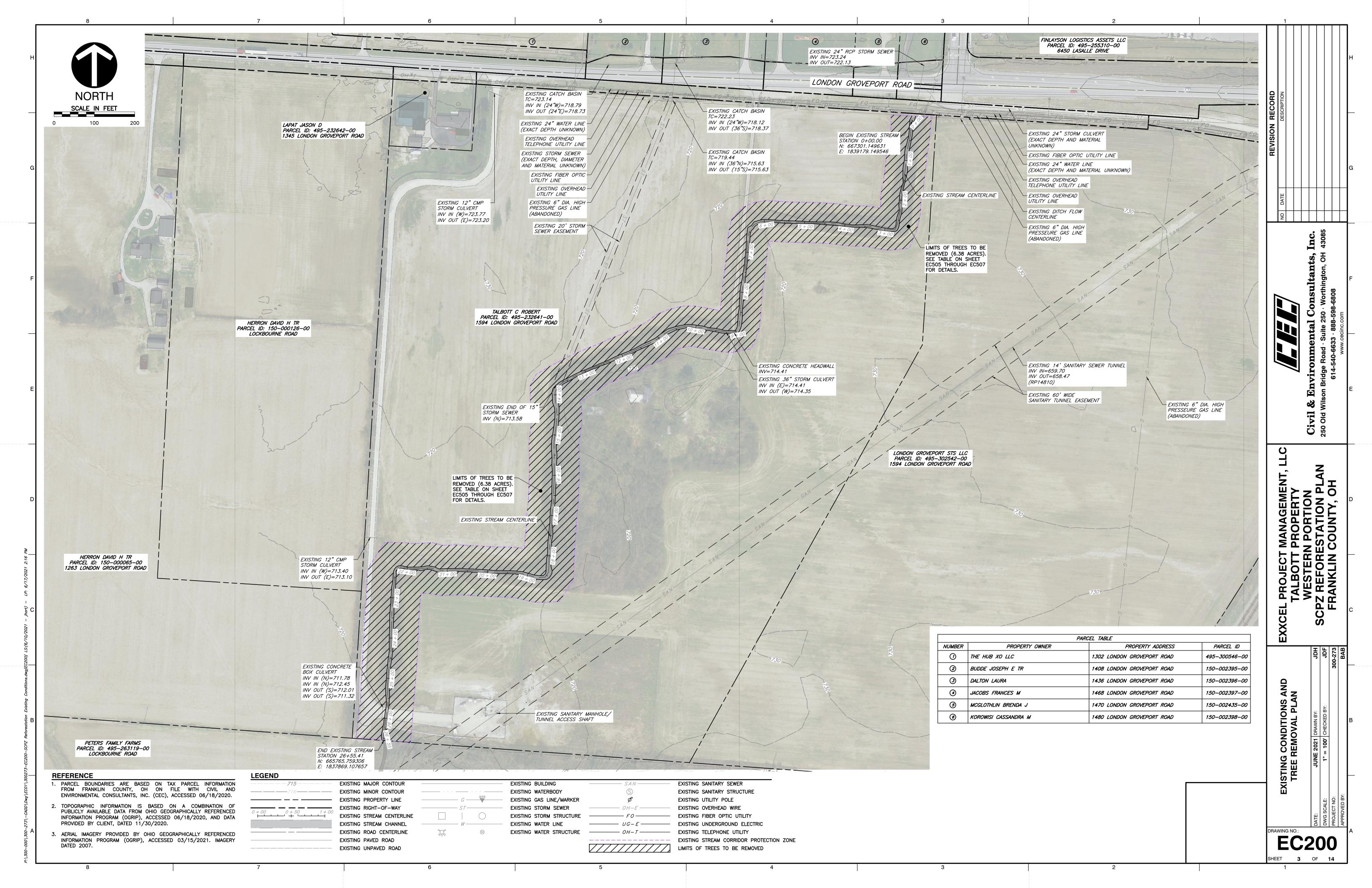
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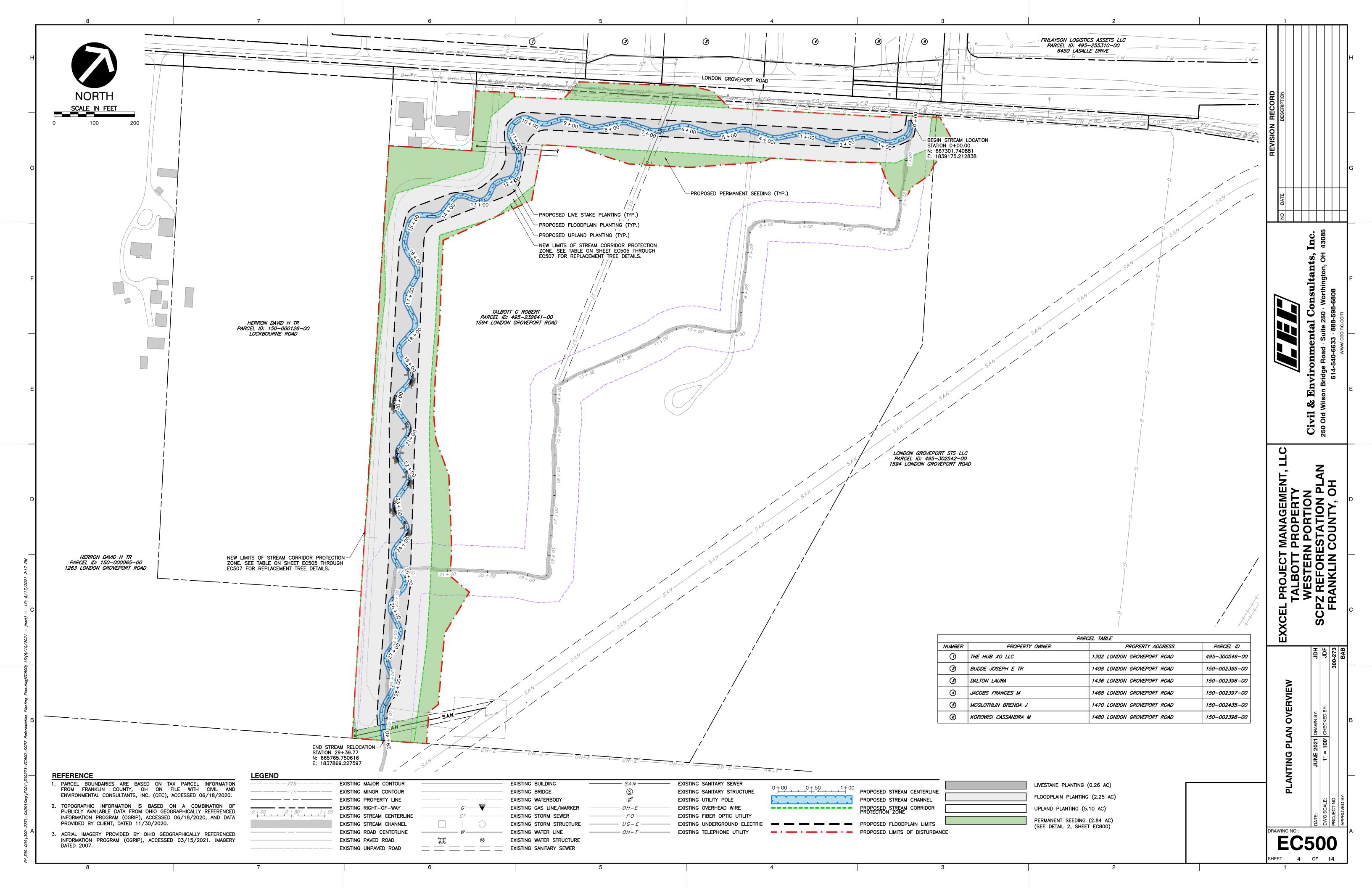
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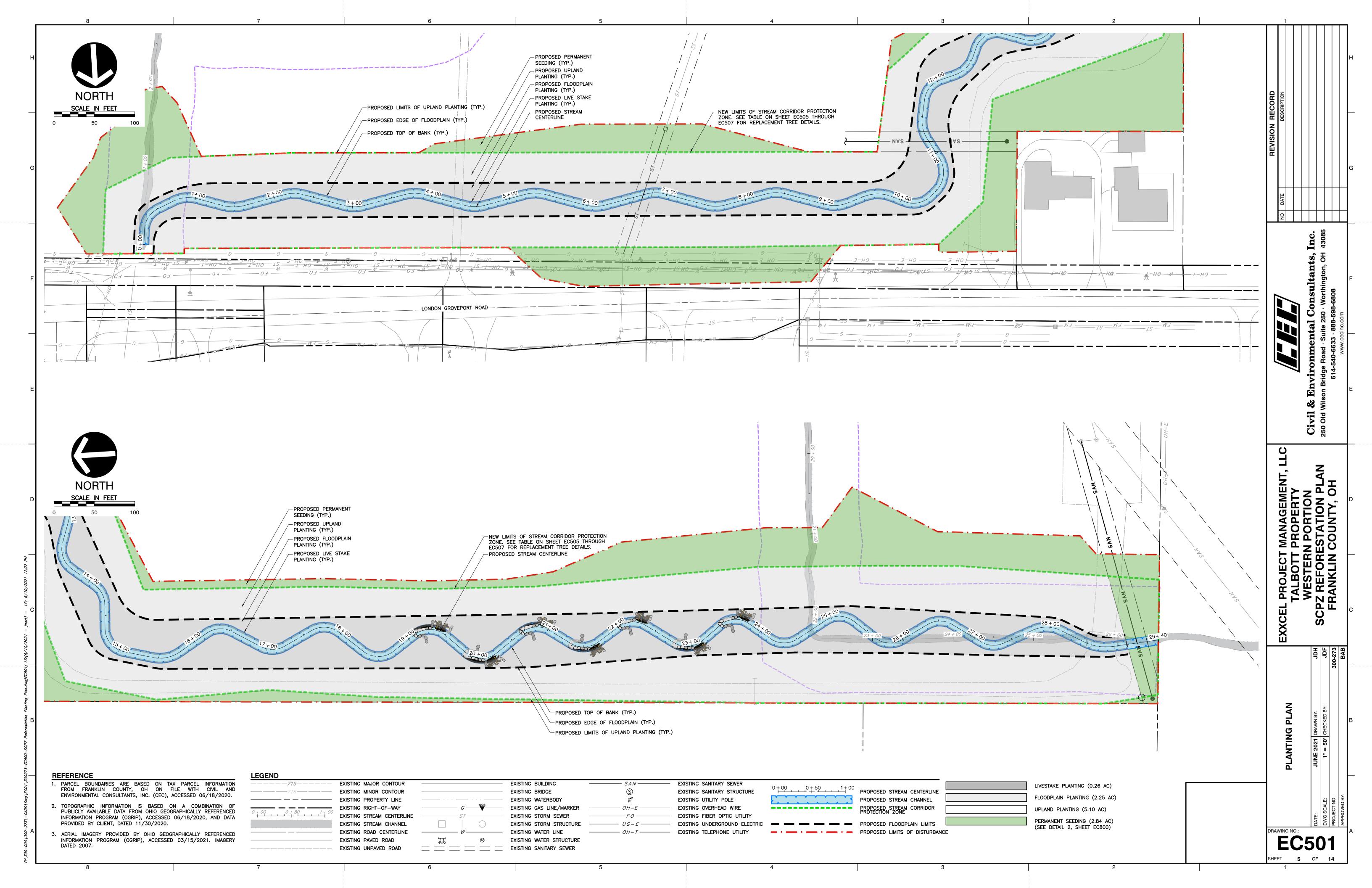
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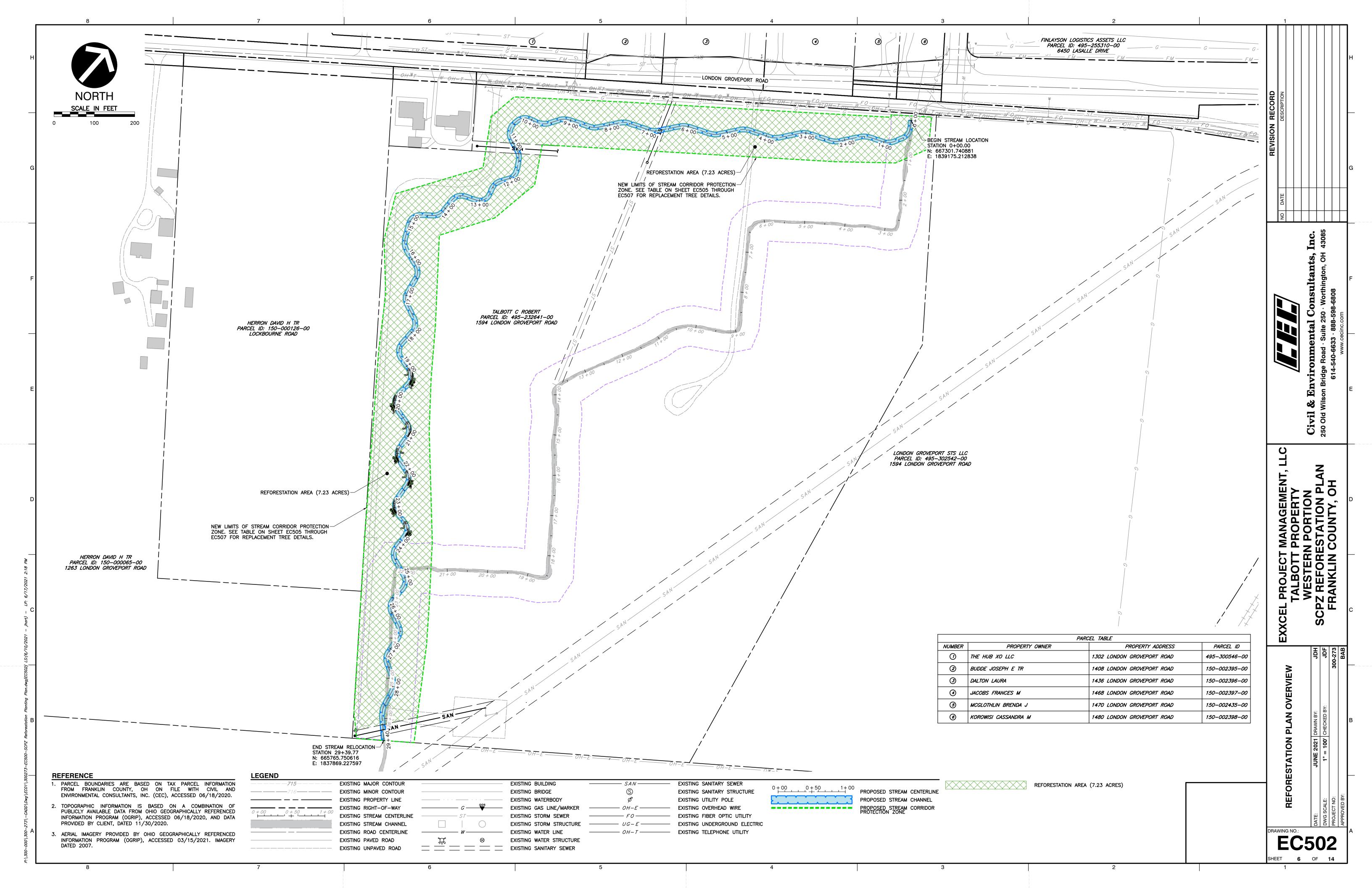
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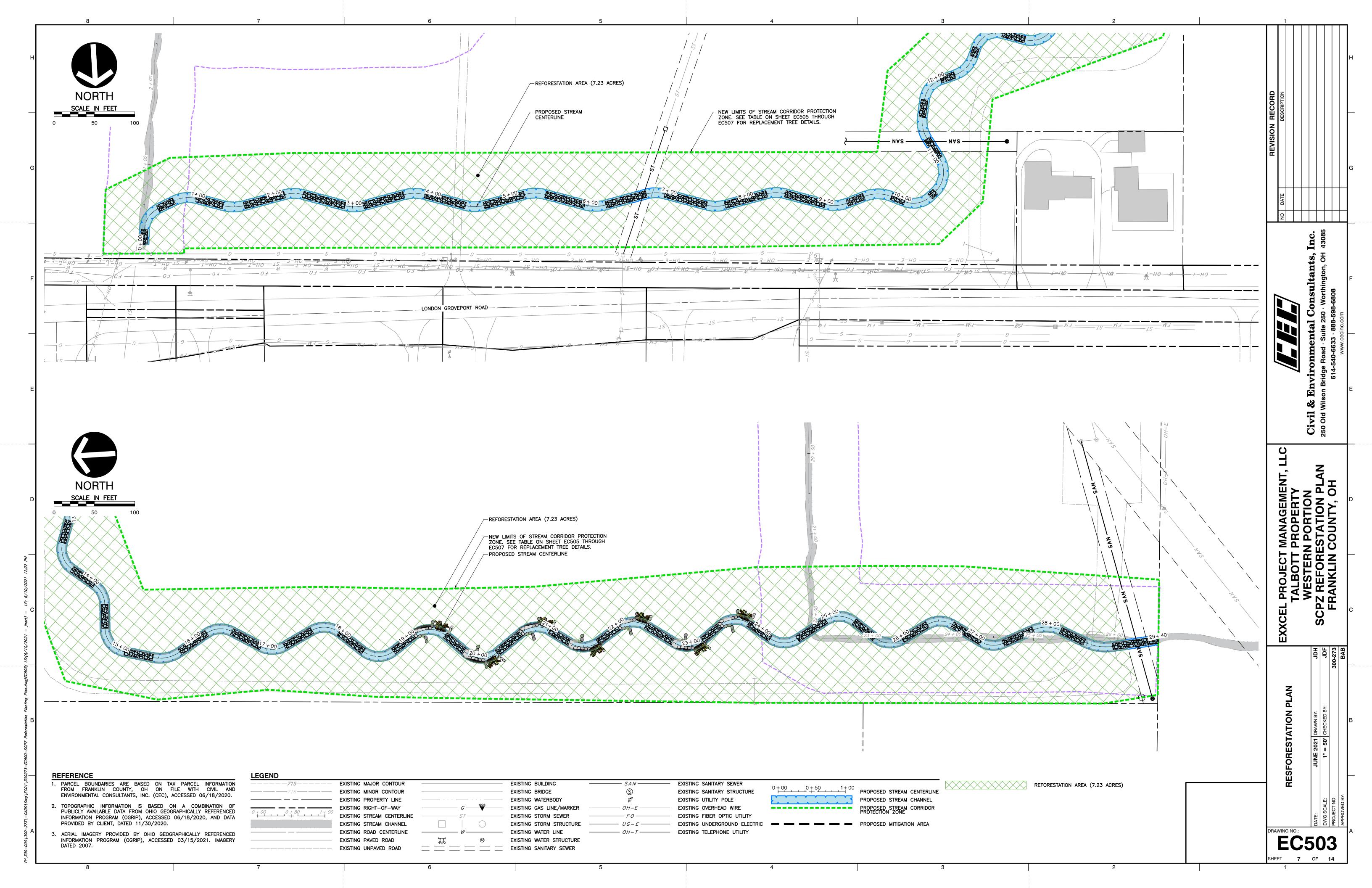
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m.n.n.	CEED MIN FOR EL CORP. ANY	DENOU OF DECEOP	ATION AREAS		ACRES
TABLE 1:	SEED MIX FOR FLOODPLAIN F	BENCH OF RESTOR	ATION AREAS.		3.0
SCIENTIFIC NAME	COMMON NAME	INDICATOR STATUS*	DENSITY	LBS PER ACRE	QUANTITY (LBS)
Dichanthelium clandestinum	Deertongue	FACW	20.6%	4.12	12.36
Elymus riparius	Riverbank Wildrye	FACW	20.0%	4	12
Andropogon gerardii	Big Bluestem	FAC	10.0%	2	6
Carex lurida	Lurid Sedge	OBL	10.0%	2	6
Carex vulpenoidea	Fox Sedge	FACW	10.0%	2	6
Carex scopara	Blunt Broom Sedge	OBL	8.0%	1.6	4.8
Panicum virgatum	Switchgrass	FAC	7.2%	1.44	4.32
Juncus effusus	Soft Rush	OBL	3.0%	0.6	1.8
Heliopsis helianthoides	Oxeye Sunflower	FACU	2.0%	0.4	1.2
Verbena hastata	Swamp Vervain	FACW	2.0%	0.4	1.2
Asclepias incarnata	Swamp Milkweed	OBL	1.0%	0.2	0.6
Symphyotrichum puniceum	Purplestem Aster	OBL	1.0%	0.2	0.6
Desmodium paniculatum	Panicledleaf Ticktrefoil	FACU	1.0%	0.2	0.6
Eupatorium perfoliatum	Boneset	OBL	1.0%	0.2	0.6
Symphyotrichum novae-angliae	New England Aster	FACW	0.5%	0.1	0.3
Soellingeria umbellata	Flat Topped White Aster	FACW	0.5%	0.1	0.3
Eutrochium purpureum	Joe Pye Weed	FAC	0.5%	0.1	0.3
Monarda fistulosa	Wild Bergamot	FACU	0.5%	0.1	0.3
Vernonia noveboracensis	New York Ironweed	FACW	0.5%	0.1	0.3
Zizia aurea	Golden Alexanders	FAC	0.5%	0.1	0.3
Mimulus ringens	Square Stem Monkeyflower	OBL	0.1%	0.02	0.06
Pycnanthemum tenuifolium	Narrowleaf Mountainmint	FAC	0.1%	0.02	0.06
	·	·	100.0%	20	60.0

* Wetland indicator status based on Midwest USDA and USACE subregion.

- Substitutions may be made based upon availability and coordination with engineer.

- Flood plain bench area (2.25 acres) should be rounded up to nearest whole number for the purposes of purchasing seed.

- Seed mixed based on ERNST Seed mix for floodplains (ERMX-154)

TABLE 2: SEED MIX FO	OR SIDESLOPE (UPLAND) BETW		BENCH AND UPL	AND AREA IN	ACRES
	RESTORATIO	ON AREAS.			6.0
SCIENTIFIC NAME	COMMON NAME	INDICATOR STATUS*	DENSITY	LBS PER ACRE	QUANTITY (LBS)
Andropogon gerardii	Big Bluestem	FAC	34.9%	7	41.88
Panicum Virgatum	Switchgrass	FAC	27.0%	5	32.4
Elymus virginicus	Virginia Wildrye	FACW	21.0%	4	25.2
Sorghastrum nutans	Indiangrass	FACU	9.0%	2	10.8
Rudbeckia hirta	Blackeyed Susan	FACU	3.0%	1	3.6
Chamaecrista fasciculata	Partridge Pea	FACU	2.0%	0	2.4
Heliopsis helianthoides	Oxeye Sunflower	FACU	1.5%	0	1.8
Coreopsis tinctoria	Plains Coreopsis	FACU	1.0%	0	1.2
Desmodium canadense	Showy Ticktrefoil	FACU	0.4%	0	0.48
Asclepias syriaca	Common Milkweed	FACU	0.1%	0	0.12
Monarda fistulosa	Wild Bergamot	FACU	0.1%	0	0.12
	•	-	100.0%	19	120

* Wetland indicator status based on Midwest USDA and USACE subregion.

- Seed mixed based on ERNST Seed mix for Native Upland Wildlife Forage & Cover Meadow Mix (ERMX-123).

- Substitutions may be made based upon availability and coordination with engineer.

SCIENTIFIC NAME	COMMON NAME	INDICATOR	QUANTITY
Cephalanthus occidentalis	Buttonbush	OBL	420
Cornus amomum	Silky Dogwood	FACW	420
Ilex verticillata	Winterberry	FACW	380
Sambucus canadensis	Elderberry	FAC	400
Salix nigra	Black Willow	FAC	380
	•	TOTAL:	2000

Substitutions may be made based upon availability and coordination with engineer.Three foot spacing on center for one row on both sides of stream channel below bankfull bench.

	SCIENTIFIC NAME	COMMON NAME	INDICATOR STATUS*	BARE ROOT OR TUBELING
	Acer saccharinum	Silver Maple	FACW	350
	Carpinus caroliniana	American Hornbeam	FAC	300
	Celtis occidentalis	Common Hackberry	FAC	300
CANOPY	Platanus occidentalis	American Sycamore	FACW	350
TREES	Populus deltoides	Eastern Cottonwood	FAC	300
	Quercus bicolor	Swamp White Oak	FACW	300
	Quercus palustris	Pin Oak	FACW	350
			TOTAL:	2250
	Alnus serrulata	Smooth alder	OBL	300
	Aronia melanocarpa	Black chokeberry	FAC	400
	Cephalanthus occidentalis	Buttonbush	OBL	400
SHRUBS	Cornus amomum	Silky dogwood	FACW	400
	Sambucus canadensis	Elderberry	FAC	400
	Viburnum prunifolium	Blackhaw	FACU	350
			TOTAL:	2250

Wetland indicator status based on Northcentral and Northeast USDA and USACE subregion.

- Substitutions may be made based upon availability and coordination with engineer.

- No single species may comprise more than 15% of habitat. May substitute containerized plant stock at same density.

- Planting area approximately 7.61 acres which results in 4,070 total stems (500 stems per acre), rounded up to 4,500 stems.

EXXCEL PROJECT MANAGEMENT, LLC TALBOTT PROPERTY WESTERN PORTION	NA IG INCITATORICA PECCANA IN	JOF	S00-273 FRANKLIN COUNTY, OH
PLANTING TABLE	DRAWN BY:	AS NOTED CHECKED BY:	
PLANTIN	JUNE 2021 DRAWN BY:	AS NOTED	

ID	Latin Name	Common Name	Condition	DBH (INCHES)	Notes	Lattitude	Longitude	Stems at Breast Height	Replacement Quantity	Replacement Species
1 2	Celtis occidentalis Celtis occidentalis	Hackberry Hackberry	Good Good	6 11		39.8297562 39.8297457	-82.962104 -82.96211	1	1	Celtis occidentalis Celtis occidentalis
3	Prunus serotina	Cherry, Black	Good	34	multi-trunk	39.8297508	-82.96211	3	5	Prunus serotina
4	Prunus serotina	Cherry, Black	Good	34	multi-trunk	39.8297778	-82.962152	3	5	Prunus serotina
5	Morus rubra Celtis occidentalis	Mulberry, Red	Good	7		39.8297553	-82.962238	1	1	Carya glabra
6 7	Morus rubra	Hackberry Mulberry, Red	Good Good	8 61	multi-trunk	39.8297778 39.8297904	-82.962255 -82.962369	1 3	1 5	Celtis occidentalis Carya glabra
8	Acer negundo	Boxelder	Good	7	Tridia adilik	39.8298023	-82.962368	1	1	Acer rubra
9	Morus rubra	Mulberry, Red	Good	76	multi-trunk	39.8297888	-82.962481	5	5	Carya glabra
10	Celtis occidentalis	Hackberry	Good	11		39.8297794	-82.962552	1	1	Celtis occidentalis
11 12	Celtis occidentalis Morus rubra	Hackberry Mulberry, Red	Good Good	20 32	double trunk	39.8297485 39.8297597	-82.96261 -82.962591	1	3 5	Celtis occidentalis Carya glabra
13	Acer negundo	Boxelder	Good	18		39.8297132	-82.962687	1	2	Acer rubra
14	Acer saccharum	Maple, Sugar	Good	8		39.8297187	-82.962709	1	1	Acer saccharum
15	Acer negundo	Boxelder	Good	9		39.8296333	-82.962867	1	1	Acer rubra
16 17	Morus rubra Acer negundo	Mulberry, Red Boxelder	Good Poor	7 13		39.8296097 39.8295879	-82.962885 -82.962834	1	1	Carya glabra Acer rubra
17	Acer negundo Acer negundo	Boxelder	Poor	13		39.8295807	-82.962891	1	2 2	Acer rubra Acer rubra
19	Celtis occidentalis	Hackberry	Good	28		39.8296052	-82.962952	1	4	Celtis occidentalis
20	Acer negundo	Boxelder	Poor	24		39.8296122	-82.962979	1	3	Acer rubra
21	Acer negundo	Boxelder	Good	7		39.8295577	-82.962952	1	1	Acer rubra
22 23	Acer negundo Juglans nigra	Boxelder Walnut, Black	Good Good	8 20		39.8295459 39.8295136	-82.962983 -82.962983	1	1 2	Acer rubra Juglans nigra
23 24	Morus rubra	Mulberry, Red	Good	8		39.8295675	-82.963021	1	1	Carya glabra
25	Morus rubra	Mulberry, Red	Good	6		39.8295808	-82.963077	1	1	Carya glabra
26	Morus rubra	Mulberry, Red	Good	7		39.8295339		1	1	Carya glabra
27	Morus rubra	Mulberry, Red	Good	8		39.8295175	-82.963061	1	1	Carya glabra
28 29	Acer negundo Acer negundo	Boxelder Boxelder	Good Good	8 7		39.8295037 39.8294914	-82.963096 -82.963084	1	1	Acer rubra Acer rubra
30	Acer negando Acer saccharinum	Maple, Silver	Good	7		39.8294271	-82.963138	1		Acer rubra Acer saccharinum
31	Acer saccharinum	Maple, Silver	Good	18		39.8294342	-82.963129	1	2	Acer saccharinum
32	Acer saccharinum	Maple, Silver	Good	8		39.8294158	-82.963169	1	1	Acer saccharinum
33	Acer negundo	Boxelder	Good	8		39.8294903	-82.963098	1	1	Acer rubra
34 35	Acer negundo Acer negundo	Boxelder Boxelder	Good Good	14 8		39.8294879 39.8295102	-82.963127 -82.9631	1	2	Acer rubra Acer rubra
36	Acer negundo	Boxelder	Good	14		39.8295298	-82.963105	1	2	Acer rubra
37	Acer negundo	Boxelder	Good	6		39.8295825	-82.963094	1	_ 1	Acer rubra
38	Morus rubra	Mulberry, Red	Good	7		39.8295524	-82.963113	1	1	Carya glabra
39	Acer negundo	Boxelder	Good	12		39.8295547	-82.963155	1	1	Acer rubra
40 41	Acer negundo Acer negundo	Boxelder Boxelder	Good Good	<i>/</i> 8		39.8295597 39.8295379	-82.963176 -82.963172	1	1	Acer rubra Acer rubra
42	Acer negundo	Boxelder	Good	7		39.8295071	-82.96323	1		Acer rubra
43	Acer negundo	Boxelder	Good	10		39.8295051	-82.963216	1	1	Acer rubra
44	Morus rubra	Mulberry, Red	Good	12		39.829503	-82.963206	1	1	Carya glabra
45	Acer negundo	Boxelder	Good	11		39.8294818	-82.963174	1	1	Acer rubra
46 47	Prunus serotina Morus rubra	Cherry, Black Mulberry, Red	Good Good	17 7		39.8294802 39.8294646	-82.963176 -82.963253	1	2	Prunus serotina Carya glabra
48	Morus rubra	Mulberry, Red	Good	, 13		39.8294336	-82.963216	1	2	Carya glabra Carya glabra
49	Acer negundo	Boxelder	Good	8		39.8294023	-82.963213	1	_ 1	Acer rubra
50	Acer saccharinum	Maple, Silver	Good	11		39.8294012	-82.963235	1	1	Acer saccharinum
51 50	Acer saccharinum	Maple, Silver	Good	18		39.8294	-82.963234	1	2	Acer saccharinum
52 53	Acer negundo Acer saccharinum	Boxelder Maple, Silver	Good Good	<i>7</i> 8		39.8294126 39.829385	-82.96324 -82.963286	1	1	Acer rubra Acer saccharinum
54	Acer saccharinum	Maple, Silver	Good	9		39.8293883	-82.963293	1		Acer saccharinum
55	Acer saccharinum	Maple, Silver	Good	13		39.8293929	-82.963291	1	2	Acer saccharinum
56	Acer negundo	Boxelder	Good	10		39.8293641	-82.963302	1	1	Acer rubra
57	Acer negundo	Boxelder	Good	9 8		39.8293713 39.8294027	-82.963318	1	1	Acer rubra Acer rubra
58 59	Acer negundo Acer negundo	Boxelder Boxelder	Good Good	9		39.829402 <i>1</i> 39.8294071	-82.963331 -82.963314	1		Acer rubra Acer rubra
60	Acer negundo	Boxelder	Good	6		39.8294379	-82.963285	1	1	Acer rubra
61	Morus rubra	Mulberry, Red	Good	8		39.8294765	-82.963266	1	1	Carya glabra
62	Morus rubra	Mulberry, Red	Good	7		39.8294804	-82.963259	1	1	Carya glabra
63	Morus rubra Morus rubra	Mulberry, Red	Good	10		39.8294991 39.8294603	-82.96333 -82.963339	1	1	Carya glabra
64 65	Gleditsia triacanthos	Mulberry, Red Locust, Honey	Good Good	6 27	double trunk	39.8294936	-82.963369	2	4	Carya glabra Gleditsia triacanthos
66	Acer negundo	Boxelder	Good	8		39.829439	-82.963438	1	1	Acer rubra
67	Acer negundo	Boxelder	Good	10		39.8294342	-82.963438	1	1	Acer rubra
68	Acer negundo	Boxelder	Good	7		39.8293948	-82.963366	1	1	Acer rubra
69 70	Acer negundo Morus rubra	Boxelder Mulberry, Red	Good Poor	8 11		39.8293865 39.82936	-82.963337 -82.963372	1	1	Acer rubra Carya glabra
70 71	Acer negundo	Boxelder	Poor	9		39.8293662	-82.963375	1		Acer rubra
72	Acer negundo	Boxelder	Good	10		39.8293301	-82.96339	1	1	Acer rubra
73	Pinus strobus	Pine, White	Good	12		39.8293304	-82.963427	1	1	Juniperus virginiana
74	Acer negundo	Boxelder	Good	12		39.8293283	-82.963428	1	1	Acer rubra
75 76	Acer negundo Acer negundo	Boxelder Boxelder	Good Good	10 14		39.8293631 39.8293844	-82.963428 -82.963546	1	1	Acer rubra Acer rubra
76 77	Gleditsia triacanthos	Locust, Honey	Good	14 22		39.8293844	-82.963546 -82.963573	1	3	Gleditsia triacanthos
78	Celtis occidentalis	Hackberry	Good	24		39.8293549	-82.963576	1	3	Celtis occidentalis
79	Celtis occidentalis	Hackberry	Good	8		39.8293063	-82.963559	1	1	Celtis occidentalis
80	Prunus serotina	Cherry, Black	Good	8		39.8292753	-82.963587	1	1	Prunus serotina
81 82	Celtis occidentalis Juglans nigra	Hackberry Walnut, Black	Good Good	17 22		39.8292738 39.8292492	-82.963562 -82.963474	1 1	2 2	Celtis occidentalis
82 83	Celtis occidentalis	Hackberry	Good	22 12		39.8292492	-82.963474 -82.963553	1	1	Juglans nigra Celtis occidentalis
84	Celtis occidentalis	Hackberry	Good	16		39.8292103	-82.963545	1	2	Celtis occidentalis
85	Celtis occidentalis	Hackberry	Good	15		39.8292077	-82.963542	1	2	Celtis occidentalis
86 97	Celtis occidentalis	Hackberry	Good	7	al 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	39.829195	-82.963556	1	1	Celtis occidentalis
87 88	Celtis occidentalis Celtis occidentalis	Hackberry Hackberry	Good Good	22 29	double trunk double trunk	39.8291869 39.8291511	-82.963552 -82.963536	2	3	Celtis occidentalis Celtis occidentalis
88 89	Celtis occidentalis	Hackberry Hackberry	Good Good	29 6	aoubie li UMK	39.8291511	-82.963536 -82.963572	∠ 1	1 1	Cettis occidentalis Celtis occidentalis
90	Morus rubra	Mulberry, Red	Good	12		39.8291549	-82.963503	1	i	Carya glabra
91	Celtis occidentalis	Hackberry	Good	8		39.8290891	-82.963558	1	1	Celtis occidentalis
92 03	Celtis occidentalis	Hackberry	Good	23	double trunk	39.8291002	-82.96355	2	3	Celtis occidentalis
93	Celtis occidentalis	Hackberry	Good	23	aouble trunk	39.8290609	-82.96357	2	<u> </u>	Celtis occidentalis

Control	ID	Latin Name	Common Name	Condition	DBH (INCHES)	Notes	Lattitude		Stems at Breast Height	Replacement Quantity	Replacement Species
23 Colles constrainted February Court Colles	94	Celtis occidentalis	Hackberry	Good	7		39.8290761	-82.963554	1	1	Celtis occidentalis
2			•			double trunk			2	2	
Express Color Controllation Section Color C			•						1	2	
Column			•						2	3	
1909 Private services 1			•			double trunk			2	4	
College Control College Coll			•						1	3	
Contra controllectors Falsaks my Coops 20 Septimination 1			- ·			multi_trunk			ا ع	5 5	
Code			•			maiti-ti di ik			1	4	
Code			•			multi-trunk			4	5	
Code			•			THOMA COMM			1	1	
Apr.		Celtis occidentalis	•		7				1	1	
April Apri		Acer negundo	•	Good	6		39.8287962	-82.963421	1	1	Acer rubra
1-00 Continum continum Con	107	Acer negundo	Boxelder	Good	12		39.8288433	-82.963541	1	1	Acer rubra
Fig. Files Files	108	Acer negundo	Boxelder	Good	56	multi-trunk	39.8288421	-82.963585	3	5	Acer rubra
Calle conventions	109	Celtis occidentalis	Hackberry	Good	18		39.8287394	-82.963449	1	2	Celtis occidentalis
12 Acts sectionarm			• .						1	2	
Cells cockwinds			•						1	5	
Act									1	1	
1.5			•						1	1	
1-10			• .			double trunk			2	2	
117 Colds condentation Husbalemy Good 1 September September May Super Good 11 September September May Super Good 11 September Se			•		12				1	1	
116			•		<i>/</i>				1	1	
Cells condendation			•						1	1	
Acer secrobannum			•						1	1	
Celts contentials escentry Cond 12 S9.2828000 92.283914 1 1 Celts contentials Celts co			•			multi-trunk			4	5	
			•			maia a anix			1	1	
Accornagements			•		· -	double trunk			2	5	
		Acer negundo	· ·						1	2	
Aper saccharum		Acer negundo	Boxelder	Good	9		39.8285371	-82.963584	1	1	Acer rubra
127 Celts condentation	125	Prunus serotina	Cherry, Black	Good	10		39.8285669	-82.96359	1	1	Prunus serotina
2008 Coctionatis	126	Acer saccharum	Maple, Sugar	Good	15		39.8284419	-82.963588	1	2	Acer saccharum
Printus serotifia Cherry Black			Hackberry	Good				-82.96359	1	2	
131 Mores without Memberry Memberry			•	Good		double trunk			2	2	
Mouse subra			• .						1	2	
122 Cells occidentalis Harberry Cood 14 38.08283109 82.08302 1 2 Cells occidentalis 13 Cells occidentalis 14 Cells occidentalis 13 Cells occidentalis 14 Cells occidentalis 14 Cells occidentalis 13 Cells occidentalis 14 Cells occidentalis 14 Cells occidentalis 14 Cells occidentalis 15 Cells occid			<u>-</u>						1	2	
133			•			multi-trunk			3	4	
Money Author			•						1	2	
135 Monus rubra			•						1	1	
138 Promus serofina Cherry, Black Good 14 39.8282316 82.938496 1 2 Prusus serofina 138 Acer saccharum Mulperny, Red Good 9 39.8282599 82.938484 1 1 Carya glabra 139 Mons nubre Mulberny, Red Good 12 39.8282593 82.938496 1 1 Carya glabra 140 Prusus serofina Cherry, Black Good 12 39.8282593 82.938497 1 1 Prusus serofina Cherry, Black Good 12 39.8282593 82.938497 1 1 Prusus serofina Cherry, Black Good 12 39.8282593 82.93851 1 1 Carya glabra Carya			•						1	4	
137 Acer saccharum Mapin Supar Good 9 39.8282588 82.983465 1 1 Acer saccharum Land Mulberry, Red Good 8 39.8282589 82.883484 1 1 Carya glabra Carya glabra Acer saccharum Carya glabra Acer saccharum Carya glabra Acer saccharum Carya glabra Acer saccharum Mulberry, Red Good 9 39.8282683 82.883586 1 1 Carya glabra Acer saccharum Mulberry, Red Good 9 39.8282688 82.883518 1 1 Carya glabra Acer saccharum Mulberry, Red Good 6 39.8282688 82.883518 1 1 Carya glabra Acer saccharum Acer saccha			• .		•				1	2	
138 Mons rubn			•						1	1	
139 Monus rubma Mulberny Red Good 12 39,8282539 82,985369 1					=				1	1	
140 Privins serolina Cherry, Black Good 12 39,8283081 42,983487 1 1 Privins serolina 141 Moris shire Maple, Sugar Good 6 39,828288 42,983581 1 1 Carya gibbra 142 Acer saccharum Maple, Sugar Good 6 39,828288 42,983581 1 1 Celis occidentalis 144 Celis occidentalis 144 Celis occidentalis 145 Celis occidentalis 145 Celis occidentalis 145 Celis occidentalis 146 Celis occidentalis 146 Celis occidentalis 146 Celis occidentalis 146 Celis occidentalis 147 Celis occidentalis 148 Celis occi									1	1	
141 Morus rubra Mulberry, Red Good 9 38, 8282988 82, 983585 1 1 Carya glabra Acer saccharum Maple, Sugar Good 6 39, 8282988 22, 983585 1 1 Caltis sociolarialis Haicherry Good 7 39, 8282983 22, 983585 1 1 Caltis sociolarialis Haicherry Good 28 39, 8282918 22, 983585 1 4 Celtis sociolarialis Celtis sociolarialis Haicherry Good 28 39, 8282918 28, 983383 1 1 Gledifisia fricanthos Coust, Honey Good 17 39, 8282198 28, 983383 1 1 Gledifisia triacanthos Coust, Honey Good 17 39, 8282088 42, 983587 1 2 Celtis sociolarialis Celtis sociolarialis Hackberry Good 14 39, 8282195 42, 983587 1 2 Celtis sociolarialis Celtis socio			•						1	1	
142 Ager saccharum Maple, Sugar Good 6 39.8282666 22.963561 1 1 Acer saccharum 143 Celtis occidentalis Hackberry Good 7 39.8282561 1 2 4 Celtis occidentalis 144 Celtis occidentalis Hackberry Good 12 39.8282168 39.828361 1 1 Gleditis interactions Courst Honey Good 12 39.8282168 39.828361 1 1 Gleditis interactions Courst Honey Good 17 39.8282168 39.98363 1 1 Gleditis interactions Courst Honey Good 17 39.8282168 39.98367 1 2 Celtis occidentalis Courst Honey Good 14 39.828168 42.9805879 1 2 Celtis occidentalis Courst Honey Good 16 39.8281727 42.9805879 1 2 Celtis occidentalis Cherry Black Good 14 39.8281727 42.9805819 1 2 Celtis occidentalis Cherry Black Good 16 39.8281727 42.9805819 1 2 Celtis occidentalis Cherry Black Good 16 39.8281727 42.9805819 1 2 Celtis occidentalis Cherry Black Good 16 39.8281727 42.9805819 1 2 Celtis occidentalis Cherry Black Good 16 39.8281727 42.9805819 1 2 Celtis occidentalis Cherry Black Good 16 39.8281727 42.9805819 1 2 Celtis occidentalis Cherry Black Good 16 39.8281827 42.9805819 1 2 Celtis occidentalis Cherry Black Good 16 39.8281827 42.9805819 1 2 Celtis occidentalis Cherry Black Good 16 39.8281827 42.9805819 1 2 Celtis occidentalis Cherry Black Good 16 39.8281827 42.9805819 1 2 Celtis occidentalis Cherry Black Good 14 39.8281827 42.9805819 1 2 Celtis occidentalis Cherry Black Good 14 39.8281827 42.9805819 1 2 Celtis occidentalis Cherry Black Good 17 39.8281828 42.9805819 1 2 Celtis occidentalis Cherry Black Good 17 39.8281828 42.9805819 1 2 Celtis occidentalis Cherry Black Good 17 39.8281828 42.9805819 1 2 Celtis occidentalis Cherry Black Good 18 39.8281828 42.9805819 1 2 Celtis occidentalis		Morus rubra	•						1	1	
144 Celtis accidentalis Hackberry Good 28 39.8282812 82.963819 1 4 Celtis occidentalis 145 Celtis interactions Locust, Honey Good 12 39.828139 1 1 Geletisia triacanthos 146 Celtis occidentalis Hackberry Good 17 39.8282015 42.963827 1 2 Celtis occidentalis 146 Celtis occidentalis Hackberry Good 14 39.8281215 42.963827 1 2 Celtis occidentalis 146 Celtis occidentalis Hackberry Good 14 39.8281215 42.963829 1 2 Celtis occidentalis 146 Celtis occidentalis Hackberry Good 16 39.8281212 42.963519 1 2 Celtis occidentalis 147 Celtis occidentalis Hackberry Good 16 39.8281217 42.963519 1 2 Celtis occidentalis 147 Celtis occidentalis Hackberry Good 16 39.828127 42.963519 1 2 Celtis occidentalis 147 Celtis occidentalis Hackberry Good 16 39.828127 42.963519 1 2 Celtis occidentalis 147 Celtis occidentalis	142	Acer saccharum	Maple, Sugar	Good	6		39.8282866	-82.963561	1	1	
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146 Gleditsal tracanthos Coust, Honey Good 8 39.828215 32.96383 1 1 Gleditsal triacanthos Celtis occidentalis Hackberry Good 17 39.8282086 82.963627 1 2 Celtis occidentalis Celtis occidentalis Loust, Honey Good 14 39.8281958 82.963629 1 2 Gleditsia triacanthos Celtis occidentalis Celtis occi	144	Celtis occidentalis	Hackberry	Good	28		39.8282612	-82.963619	1	4	Celtis occidentalis
147 Celtis cocidentalis Hackberry Good 17 39,8281966 82,983827 1 2 Celtis occidentalis 148 Gleditisia triacarthos Locust, Honey Good 14 39,8281926 82,983819 1 2 Celtis occidentalis 150 Prunus serotina Hackberry Good 16 39,8281922 82,983819 1 2 Celtis occidentalis 150 Prunus serotina Elm, American Good 7 39,8281727 82,983519 1 1 Ulmus americana Elm, American Good 7 39,8281727 82,983511 1 1 Ulmus americana 152 Prunus serotina Cherry, Black Good 16 39,8281747 82,983484 1 2 Prunus serotina Cherry, Black Good 6 39,8281747 82,983484 1 2 Prunus serotina Cherry, Black Good 16 39,8281328 82,983486 1 2 Prunus serotina Cherry, Black Good 14 39,8281329 82,983486 1 2 Prunus serotina Cherry, Black Good 14 39,8281329 82,983486 1 2 Prunus serotina Cherry, Black Good 14 39,8281329 82,983486 1 2 Prunus serotina Cherry, Black Good 14 39,8281329 82,983486 1 2 Prunus serotina Cherry, Black Good 12 39,828144 82,983496 1 1 Prunus serotina Cherry, Black Good 13 39,8281327 82,983511 1 2 Prunus serotina Cherry, Black Good 13 39,8281327 82,983511 1 2 Prunus serotina Cherry, Black Good 13 39,8281327 82,983511 1 2 Prunus serotina Cherry, Black Good 13 39,8281327 82,983511 1 2 Prunus serotina Cherry, Black Good 14 39,8281327 82,983511 1 2 Prunus serotina Cherry, Black Good 14 39,8281327 82,983511 1 2 Prunus serotina Cherry, Black Good 14 39,8281327 82,983511 1 2 Prunus serotina Cherry, Black Good 14 39,8281327 82,983511 1 2 Prunus serotina Cherry, Black Good 14 39,8281328 82,983511 1 2 Celtis occidentalis Celtis occidental			•						1	1	
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166 Prunus serotina Cherry, Black Good 13 39.8281242 -82.963507 1 2 Prunus serotina 167 Acer saccharum Maple, Sugar Good 9 39.828102 -82.963513 1 1 Acer saccharum 168 Prunus serotina Cherry, Black Good 14 39.8281033 -82.963509 1 2 Prunus serotina 169 Ulmus americana Elm, American Good 9 39.8280855 -82.963517 1 1 Ulmus americana 170 Acer saccharum Maple, Sugar Good 13 39.828087 -82.963544 1 2 Acer saccharum 171 Juglans nigra Walnut, Black Good 14 39.8280916 -82.96355 1 2 Juglans nigra 172 Salix nigra Willow, Black Good 12 39.827037 -82.964865 1 1 Salix nigra 173 Juglans nigra Walnut, Black Good 14 double trun					_				1	1	
167 Acer saccharum Maple, Sugar Good 9 39.828102 -82.963513 1 1 Acer saccharum 168 Prunus serotina Cherry, Black Good 14 39.8281033 -82.963509 1 2 Prunus serotina 169 Ulmus americana Elm, American Good 9 39.8280855 -82.963517 1 1 Ulmus americana 170 Acer saccharum Maple, Sugar Good 13 39.828087 -82.963544 1 2 Acer saccharum 171 Juglans nigra Walnut, Black Good 14 39.8280916 -82.96355 1 2 Juglans nigra 172 Salix nigra Willow, Black Good 12 39.827037 -82.964865 1 1 Salix nigra 173 Juglans nigra Walnut, Black Good 14 double trunk 39.8270434 -82.96493 2 2 Juglans nigra 174 Populus deltoides Cottonwood Good 7 <td></td> <td></td> <td>- ·</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>1</td> <td>] •</td> <td></td>			- ·						1] •	
168 Prunus serotina Cherry, Black Good 14 39.8281033 -82.963509 1 2 Prunus serotina 169 Ulmus americana Elm, American Good 9 39.8280855 -82.963517 1 1 Ulmus americana 170 Acer saccharum Maple, Sugar Good 13 39.8280877 -82.963544 1 2 Acer saccharum 171 Juglans nigra Walnut, Black Good 14 39.8280916 -82.963635 1 2 Juglans nigra 172 Salix nigra Willow, Black Good 12 39.827037 -82.964865 1 1 Salix nigra 173 Juglans nigra Walnut, Black Good 14 double trunk 39.8270434 -82.96493 2 2 Juglans nigra 174 Populus deltoides Cottonwood Good 7 39.8270773 -82.964918 1 1 Populus deltoides 175 Populus deltoides Cottonwood Good <t< td=""><td></td><td></td><td>•</td><td></td><td></td><td></td><td></td><td></td><td>1</td><td>1</td><td></td></t<>			•						1	1	
169 Ulmus americana Elm, American Good 9 39.8280855 -82.963517 1 1 Ulmus americana 170 Acer saccharum Maple, Sugar Good 13 39.8280877 -82.963544 1 2 Acer saccharum 171 Juglans nigra Walnut, Black Good 14 39.8280916 -82.963635 1 2 Juglans nigra 172 Salix nigra Willow, Black Good 12 39.827037 -82.964865 1 1 Salix nigra 173 Juglans nigra Walnut, Black Good 14 double trunk 39.8270434 -82.96493 2 2 Juglans nigra 174 Populus deltoides Cottonwood Good 7 39.8270773 -82.964918 1 1 Populus deltoides 175 Populus deltoides Cottonwood Good 7 39.8270757 -82.965171 1 1 Populus deltoides 176 Populus deltoides Cottonwood Good <t< td=""><td></td><td></td><td>• • •</td><td></td><td>_</td><td></td><td></td><td></td><td>1</td><td>2</td><td></td></t<>			• • •		_				1	2	
170 Acer saccharum Maple, Sugar Good 13 39.8280877 -82.963544 1 2 Acer saccharum 171 Juglans nigra Walnut, Black Good 14 39.8280916 -82.963635 1 2 Juglans nigra 172 Salix nigra Willow, Black Good 12 39.827037 -82.964865 1 1 Salix nigra 173 Juglans nigra Walnut, Black Good 14 double trunk 39.8270434 -82.96493 2 2 Juglans nigra 174 Populus deltoides Cottonwood Good 7 39.8270773 -82.964918 1 1 Populus deltoides 175 Populus deltoides Cottonwood Good 7 39.8271107 -82.965171 1 1 Populus deltoides 176 Populus deltoides Cottonwood Good 6 39.8270757 -82.96518 1 1 Populus deltoides			• •						1	1	
171 Juglans nigra Walnut, Black Good 14 39.8280916 -82.963635 1 2 Juglans nigra 172 Salix nigra Willow, Black Good 12 39.827037 -82.964865 1 1 Salix nigra 173 Juglans nigra Walnut, Black Good 14 double trunk 39.8270434 -82.96493 2 2 Juglans nigra 174 Populus deltoides Cottonwood Good 7 39.8270773 -82.964918 1 1 Populus deltoides 175 Populus deltoides Cottonwood Good 7 39.8271107 -82.965171 1 1 Populus deltoides 176 Populus deltoides Cottonwood Good 6 39.8270757 -82.96518 1 1 Populus deltoides			•		-				1	2	
172 Salix nigra Willow, Black Good 12 39.827037 -82.964865 1 1 Salix nigra 173 Juglans nigra Walnut, Black Good 14 double trunk 39.8270434 -82.96493 2 2 Juglans nigra 174 Populus deltoides Cottonwood Good 7 39.8270773 -82.964918 1 1 Populus deltoides 175 Populus deltoides Cottonwood Good 7 39.8271107 -82.965171 1 1 Populus deltoides 176 Populus deltoides Cottonwood Good 6 39.8270757 -82.96518 1 1 Populus deltoides									1	2	
173Juglans nigraWalnut, BlackGood14double trunk39.8270434-82.96493222Juglans nigra174Populus deltoidesCottonwoodGood739.8270773-82.964918111Populus deltoides175Populus deltoidesCottonwoodGood739.8271107-82.96517111Populus deltoides176Populus deltoidesCottonwoodGood639.8270757-82.9651811Populus deltoides		-	•						1	_ 1	
174 Populus deltoides Cottonwood Good 7 39.8270773 -82.964918 1 1 Populus deltoides 175 Populus deltoides Cottonwood Good 7 39.8271107 -82.965171 1 1 Populus deltoides 176 Populus deltoides Cottonwood Good 6 39.8270757 -82.96518 1 1 Populus deltoides		-	•			double trunk			2	2	_
176 Populus deltoides Cottonwood Good 6 39.8270757 -82.96518 1 1 Populus deltoides			•		7				1	1	
		•	Cottonwood	Good	7				1	1	l -
177 Populus deltoides Cottonwood Good 7 39.8270808 -82.965187 1 1 Populus deltoides		•			6				1	1	
	177	Populus deltoides	Cottonwood	Good	7		39.8270808	-82.965187	1	1	Populus deltoides

EXXCEL PROJECT MANAGEN
TALBOTT PROPERT
WESTERN PORTION
SCPZ REFORESTATION
FRANKLIN COUNTY, (1)

STREAM CORRIDOR PROTECTION ZONE REFORESTATION SUMMARY TABLE

SHEET **9** OF **14**

ID	Latin Name	Common Name	Condition	DBH (INCHES)	Notes	Lattitude	Longitude	Stems at Breast Height	Replacement Quantity	Replacement Species
178	Populus deltoides	Cottonwood	Good	7		39.8270395	-82.965188	1	1	Populus deltoides
179	Celtis occidentalis	Hackberry	Good	6		39.8270792	-82.965353	1	1	Celtis occidentalis
180	Juglans nigra Celtis occidentalis	Walnut, Black	Good	20 8		39.8271179	-82.965357	1	3	Juglans nigra Celtis occidentalis
181 182	Celtis occidentalis	Hackberry Hackberry	Good Good	8		39.8271543 39.827157	-82.965339 -82.965331	1	1	Celtis occidentalis Celtis occidentalis
183	Juglans nigra	Walnut, Black	Good	24		39.82716	-82.965373	1	3	Juglans nigra
184	Juglans nigra	Walnut, Black	Good	42	double trunk	39.8271767	-82.965341	2	5	Juglans nigra
185	Celtis occidentalis	Hackberry	Good	16		39.8272568	-82.96535	1	2	Celtis occidentalis
186 187	Celtis occidentalis Acer saccharum	Hackberry	Good	20	ما المدارية المدارية	39.8272733	-82.965367	1	3	Celtis occidentalis
187 188	Celtis occidentalis	Maple, Sugar Hackberry	Good Good	22 20	multi-trunk	39.8272994 39.8273115	-82.965367 -82.965367	3 1	ა ვ	Acer saccharum Celtis occidentalis
189	Acer saccharum	Maple, Sugar	Good	26	double trunk		-82.965347	2	4	Acer saccharum
190	Celtis occidentalis	Hackberry	Good	17		39.8276449	-82.965324	1	2	Celtis occidentalis
191	Celtis occidentalis	Hackberry	Good	16		39.8278061	-82.965322	1	2	Celtis occidentalis
192	Celtis occidentalis	Hackberry	Good	22	double trunk		-82.965322	2	3	Celtis occidentalis
193 194	Celtis occidentalis Acer saccharum	Hackberry Maple, Sugar	Good Good	18 16		39.8280062 39.8280108	-82.965309 -82.965307	1	2	Celtis occidentalis Acer saccharum
195	Populus deltoides	Cottonwood	Good	10		39.8281591	-82.965264	1	1	Populus deltoides
196	Populus deltoides	Cottonwood	Good	7		39.828272	-82.965257	1	1	Populus deltoides
197	Populus deltoides	Cottonwood	Good	8		39.8282786	-82.965256	1	1	Populus deltoides
198	Populus deltoides	Cottonwood	Good	13		39.8312678	-82.960512	1	2	Populus deltoides
199 200	Celtis occidentalis Celtis occidentalis	Hackberry Hackberry	Good Good	6 20	double trunk	39.8311952 39.8311975	-82.960514 -82.960492	1	1 2	Celtis occidentalis Celtis occidentalis
200	Morus rubra	Mulberry, Red	Good	20 15	double trunk	39.8310965	-82.960545	2	2	Carya glabra
202	Celtis occidentalis	Hackberry	Good	8	double traint	39.8310657	-82.960534	1	1	Celtis occidentalis
203	Prunus serotina	Cherry, Black	Good	8		39.8310584	-82.960519	1	1	Prunus serotina
204	Celtis occidentalis	Hackberry	Good	7		39.8310342	-82.96053	1	1	Celtis occidentalis
205	Celtis occidentalis Prunus serotina	Hackberry	Good	6		39.8309087	-82.960575	1	1	Celtis occidentalis
206 207	Prunus serotina Prunus serotina	Cherry, Black Cherry, Black	Good Good	13 9		39.8308819 39.8308517	-82.960555 -82.96057	1	1	Prunus serotina Prunus serotina
208	Prunus serotina	Cherry, Black	Good	9		39.8308526	-82.960564	1	1	Prunus serotina
209	Prunus serotina	Cherry, Black	Good	12		39.83081	-82.960578	1	1	Prunus serotina
210	Prunus serotina	Cherry, Black	Good	6		39.8307805	-82.960595	1	1	Prunus serotina
211	Morus rubra	Mulberry, Red	Good	6		39.8307898	-82.960568	1	1	Carya glabra
212	Prunus serotina Prunus serotina	Cherry, Black	Good	12		39.830743	-82.960585	1	1	Prunus serotina
213 214	Gleditsia triacanthos	Cherry, Black Locust, Honey	Good Good	10 12		39.8307409 39.8306611	-82.960603 -82.960623	1	1	Prunus serotina Gleditsia triacanthos
215	Acer negundo	Boxelder	Good	10		39.830533	-82.96063	1	1	Acer rubra
216	Prunus serotina	Cherry, Black	Good	10		39.8305222	-82.960818	1	1	Prunus serotina
217	Acer negundo	Boxelder	Good	7		39.8305251	-82.960842	1	1	Acer rubra
218	Acer negundo	Boxelder	Good	7		39.8305343	-82.960915	1	1	Acer rubra
219 220	Acer negundo Acer negundo	Boxelder Boxelder	Good Good	22 22	double trunk	39.8305245 39.8305336	-82.961213 -82.961196	2	3	Acer rubra Acer rubra
221	Morus rubra	Mulberry, Red	Good	10	double train	39.8305497	-82.96131	1	1	Carya glabra
222	Morus rubra	Mulberry, Red	Good	20	double trunk		-82.961334	2	3	Carya glabra
223	Celtis occidentalis	Hackberry	Good	12		39.8305537	-82.961408	1	1	Celtis occidentalis
224	Celtis occidentalis	Hackberry	Good	7		39.8305576	-82.961591	1	1	Celtis occidentalis
225	Acer negundo Morus alba	Boxelder	Poor	22	double trunk	39.8305548	-82.96168	2	3	Acer rubra
226 227	Morus rubra	Mulberry, White Mulberry, Red	Good Good	6 7		39.8305739 39.8306521	-82.96178 -82.961897	1	1	Morus alba Carya glabra
228	Celtis occidentalis	Hackberry	Good	6		39.8305532	-82.96197	1	1	Celtis occidentalis
229	Celtis occidentalis	Hackberry	Good	7		39.8304799	-82.961971	1	1	Celtis occidentalis
230	Morus alba	Mulberry, White	Good	8		39.8303555	-82.96198	1	1	Morus alba
231	Morus alba	Mulberry, White	Good	6		39.8302062	-82.962013	1	1	Morus alba
232 233	Celtis occidentalis Celtis occidentalis	Hackberry Hackberry	Good Good	/ 6		39.8298277 39.8298331	-82.962022 -82.962017	1	1	Celtis occidentalis Celtis occidentalis
234	Morus alba	Mulberry, White	Good	9		39.829767	-82.962012	1	1	Morus alba
235	Morus alba	Mulberry, White	Poor	18	double trunk		-82.962003	2	2	Morus alba
236	Morus alba	Mulberry, White	Good	29	multi-trunk	39.8296698	-82.961974	3	4	Morus alba
237	Morus alba	Mulberry, White	Good	9		39.8297505	-82.961953	1	1	Morus alba
238	Morus alba Morus alba	Mulberry, White	Good	7	daubla trusk	39.8298807 39.8299128	-82.961916	1	1	Morus alba Morus alba
239 240	Morus alba	Mulberry, White Mulberry, White	Good Good	14 8	double trurk	39.8300082	-82.961941 -82.961935	∠ 1	1	Morus alba
241	Morus alba	Mulberry, White	Good	10		39.8300729	-82.961912	1	1	Morus alba
242	Morus alba	Mulberry, White	Good	18	double trunk	39.8301177	-82.961908	2	2	Morus alba
243	Morus alba	Mulberry, White	Good	9		39.8303274	-82.961897	1	1	Morus alba
244 245	Celtis occidentalis Celtis occidentalis	Hackberry Hackberry	Good Good	9 6		39.8305014 39.8305136	-82.961731 -82.96176	1	1	Celtis occidentalis Celtis occidentalis
245 246	Acer negundo	Boxelder	Poor	8		39.8305136	-82.96176 -82.961761	1		Acer rubra
247	Celtis occidentalis	Hackberry	Poor	8		39.8305108	-82.961653	1	1	Celtis occidentalis
248	Celtis occidentalis	Hackberry	Good	7		39.8305086	-82.961634	1	1	Celtis occidentalis
249	Celtis occidentalis	Hackberry	Good	9		39.8304971	-82.961553	1	1	Celtis occidentalis
250	Celtis occidentalis	Hackberry	Good	15		39.8304868	-82.961392	2	2	Celtis occidentalis
251 252	Morus rubra Morus rubra	Mulberry, Red Mulberry, Red	Good Good	15 7	double trunk	39.8304974 39.8305094	-82.961371 -82.961357	2	2	Carya glabra Carya glabra
253	Acer negundo	Boxelder	Good	13	double trunk	39.8305277	-82.961294	2	2	Acer rubra
254	Prunus serotina	Cherry, Black	Good	8		39.8305006	-82.961241	1	1	Prunus serotina
255	Celtis occidentalis	Hackberry	Good	7		39.8305007	-82.961239	1	1	Celtis occidentalis
256 257	Celtis occidentalis	Hackberry	Good	9		39.8304849	-82.96124	1	1	Celtis occidentalis
257 258	Celtis occidentalis Celtis occidentalis	Hackberry Hackberry	Good Good	7 10		39.8304851 39.8304488	-82.961027 -82.960901	1	1	Celtis occidentalis Celtis occidentalis
∠58 259	Celtis occidentalis	Hackberry Hackberry	Good	7		39.8304488	-82.960901 -82.960813	1		Celtis occidentalis Celtis occidentalis
260	Morus rubra	Mulberry, Red	Good	11		39.8304512	-82.960816	1	1	Carya glabra
261	Celtis occidentalis	Hackberry	Good	7		39.830474	-82.960815	1	1	Celtis occidentalis
262	Prunus serotina	Cherry, Black	Good	7		39.8304696	-82.960654	1	1	Prunus serotina
263 264	Celtis occidentalis	Hackberry	Good	7		39.8304534		1	1	Celtis occidentalis
264 265	Prunus serotina Celtis occidentalis	Cherry, Black Hackberry	Good Good	/ 16	double trunk	39.8304804 39.8304724	-82.960562 -82.960536	1	1 2	Prunus serotina Celtis occidentalis
265 266	Celtis occidentalis	Hackberry	Good	7	JOUDIE LIUIK	39.8305041	-82.960536 -82.960518	1	1	Celtis occidentalis Celtis occidentalis
267	Celtis occidentalis	Hackberry	Good	6		39.8305306	-82.960529	1	1	Celtis occidentalis
268	Prunus serotina	Cherry, Black	Good	7		39.8305414	-82.960545	1	1	Prunus serotina
269	Celtis occidentalis	Hackberry	Good	8		39.83055	-82.960538	1	1 .	Celtis occidentalis
270	Acer negundo	Boxelder	Good	9		39.8305736	-82.960504	1	1	Acer rubra

277 Power Section Power	ID	Latin Name	Common Name	Condition	DBH (INCHES)	Notes	Lattitude	Longitude	Stems at Breast Height	Replacement Quantity	Replacement Species
An An An Anneymork An Anneymork An Anneymork A			Cherry, Black		7				1	1	-
24.00 Control (1998) Control (1998	272	Gleditsia triacanthos	• •	Good	13		39.8306814	-82.960499	1	2	Gleditsia triacanthos
Applications		-	Boxelder	Good	7				1	1	
200 Confe controlled Confe			•						1	1	
Committee Comm			•			double trunk			2	2	1
Contra contributions			•						1	1	
2006 Color social social feet Color 7			•		18 7	double trunk			2	2	
Selection of the content of the co			•		<i>7</i> 7				1	1	
Self-deficient incommunities Local Furthery Coop 7 Self-deficient 2009 1 1 Obechine friedworder 1 Self-deficient 2009 1 Self			•		77	multi-trunk			10	5	
Makes St. Apple Good 4 double m. m. St. Makes			•		7	maid dank			1	1	
Code			•		19	double trunk			2	3	
Approximation Approximatio		Celtis occidentalis	• •	Good	10		39.8298003	-82.962085	1	1	<u>-</u>
Cells Control Control Control Control Control	284	Acer negundo	Boxelder	Good	17	double trunk	39.8298373	-82.962345	2	2	Acer rubra
Accordance	285	Acer negundo	Boxelder	Good	31	multi-trunk	39.829838	-82.962432	3	5	Acer rubra
Abstrace Abst			•						1	2	
Acer majoration		-			14	double trunk			2	2	
Mores registrate Mores regis		<u>-</u>			7				1	1	
Agent region from Multery, Red Good 7 90 90 90 1 1 1 1 1 1 1 1 1		•			•	poulti termola			1	1	
			•						ა ე	4 1	
Mones subsection		_			20 7	double trurk			1	1	
Aper registration			• •		8				1	1	
Acer sanchannum			•		_				1	1	
		Acer saccharinum						-82.962963	1	2	
Acer second-annum	296	Prunus serotina	Cherry, Black	Good	7		39.8296702	-82.962976	1	1	Prunus serotina
Acer sacchanismum Acer prograph Mapile, Silvar Good 16 double run 39,269775 2 2 Acer sacchanismum Acer runs Acer r	297	Morus rubra	Mulberry, Red	Good	6		39.8296704	-82.962984	1	1	Carya glabra
			•		7				1	1	Acer saccharinum
Monte name			•		16	double trunk			2	2	
Acer searchammum Agein, Silver Good 8 99,820941 32,950319 1		-			7				1	1	
Acer regundo					6				1	1	1 ' '
Acer readonarum Boxelster Good 13 \$9.825547 82.893175 1 2 Acer rubra Acer cubra Acer cu			•		δ 7				1	1	
Acer saccharinum Maple, Silver Good 15 39.0205558 82.003213 1 2 Acer saccharinum Acer selection 10 39.0205558 82.003213 1 1 Printes serettina		<u>-</u>			/ 13				1	9	
Primus serontina Primus sero		-							1	2	
Aper regumb			•						1	1	
Acer regumde			•			double trunk			2	2	
310 Acer regundo Boweler Good 14 39,824453 82,86456 1 2 Acer rubra 311 Gletists abecambos Locust, Honey Good 6 39,825955 82,963586 1 1 Carya glabra Carya glabr	308	Populus deltoides	Cottonwood	Good	6		39.8295713	-82.96339	1	1	Populus deltoides
311 Olentitis iniseambros Locust Heney Good 14 39 8294709 82 935024 1 2 Celebrate inicarathos 12 Muherry, Red Good 5 39 8294827 82 935377 3 4 Carya glabra 131 Mones robra Muherry, Red Good 25 musi-frurk 39 8294827 82 935377 3 4 Carya glabra 131 Carya glabra 132 Carya glabra	309	Acer negundo	Boxelder	Good	18		39.8295047	-82.963417	1	2	Acer rubra
313 Mons robra Mubern, Red Good 6 Good 5 multi-trurk 39,829462 82,98367 3 4 Carya glabra		_	Boxelder	Good	14				1	2	
313 Monts nibra									1	2	
14 Celts cocldentals Hackberry Good 13 39.829366 82.293642 1 2 Celts occidentals			• •			10. (1	1	
315 Prunus serotina Prunus serotina Prunus serotina Boweller Good 12 3.9.023311 82.95367 1 1 Acer rubra 316 Acer regundo Boweller Good 9 3.9.022488 82.95361 1 1 Prunus serotina 317 Prunus serotina Cherry, Black Good 9 3.9.022488 82.95361 1 1 Prunus serotina 318 Cellis cocidentalis Losus, Honey Good 15 double lrunk 39.821194 82.95366 1 1 Cellis occidentalis Cellis Cellis occidentalis Cellis Cellis Cellis occidentalis Cellis Cell			•			multi-trunk			3	4	
Acer regundo			•		7				1	4	
317 Privius serotina Cherry, Black Good 9 39,82620478 82,963816 1 1 Privius serotina 318 Cellis cocidentalis Heckberry Good 10 39,8291778 42,963808 1 1 Cellis cocidentalis 319 Cellis cocidentalis			· ·		/ 12				1	1	
318 Celits occidentalis Hackberry Good 10 38 820314 22 983080 1 Celits occidentalis 319 Gelitis infracratives Court		-							1	1	
319 Gleditisia triacanthos Coust, Honey Good 6 Guble trunk 39 829194 82 963868 2 Celtiss occidentalis Section Se			•						1	1	
221 Juglans nigra Walnut, Elsek Good 6 39,8211009 32,993837 1 1 Juglans nigra Walnut, Elsek Good 6 39,8211048 32,993847 1 1 Juglans nigra Walnut, Elsek Good 8 39,8211048 32,983816 1 1 Juglans nigra Walnut, Elsek Good 7 39,8280731 32,983816 1 1 Juglans nigra Walnut, Elsek Good 7 39,8280731 32,983816 1 1 Carrya glabra Walnut, Elsek Good 7 39,8280731 32,98381 1 Carrya glabra Walnut, Elsek Good 6 39,9200423 32,963868 1 1 Carrya glabra Carrya glabra Good 6 39,9200423 32,963868 1 1 Carrya glabra Good Good 9 39,92889673 32,963868 1 1 Carrya glabra Good	319	Gleditsia triacanthos	Locust, Honey	Good	15	double trunk	39.829194	-82.96366	2	2	Gleditsia triacanthos
322 Juglans nigra Walnut, Black Good 6 39,8211591 82,9593647 1 1 Juglans nigra 323 Juglans nigra Walnut, Black Good 6 39,8210164 82,9593616 1 1 Juglans nigra 324 Morus rubra Mulberry, Red Good 11 39,8290731 82,963684 1 1 Carya glabra 325 Morus rubra Mulberry, Red Good 6 39,82900207 82,953626 1 1 Carya glabra 326 Morus rubra Mulberry, Red Good 6 39,82900207 82,9593668 1 1 Carya glabra 327 Acer negundo Boselder Good 9 39,828697 82,9593668 1 1 Acer rubra 328 Gleditsia triacanthos Looust, Honey Good 8 39,828697 82,9593656 1 1 Gleditsia triacanthos 328 Gleditsia triacanthos Looust, Honey Good 10 39,8287929 82,963638 1 1 Celtis occidentalis 4ackberry Good 7 39,8287921 82,963638 1 1 Celtis occidentalis 330 Gleditsia diacanthos Looust, Honey Good 7 39,8287921 82,963683 1 1 Celtis occidentalis 4ackberry Good 7 39,82879791 82,963652 1 1 Celtis occidentalis 332 Cellis occidentalis Hackberry Good 7 39,8287477 82,963652 1 1 Celtis occidentalis 4ackberry Good 7 39,8287477 82,963652 1 1 Celtis occidentalis 4ackberry Good 7 39,8287474 82,963652 1 1 Celtis occidentalis 4ackberry Good 7 39,8287474 82,963664 1 1 Celtis occidentalis 4ackberry Good 7 39,8287474 82,9636673 1 1 Celtis occidentalis 4ackberry Good 7 39,8287474 82,963665 1 1 Celtis occidentalis 4ackberry Good 7 39,8287474 82,963665 1 1 Celtis occidentalis 4ackberry Good 7 39,8287474 82,9636673 1 1 Celtis occidentalis 4ackberry Good 12 39,8287474 82,963673 1 1 Celtis occidentalis 4ackberry Good 12 39,8287474 82,963673 1 1 Celtis occidentalis 4ackberry Good 12 39,8287474 82,963679 1 1 Celtis occidentalis 4ackberry Good 12 39,82887474 82,963869 1 1 Celtis occidentalis 4a	320	Celtis occidentalis	Hackberry	Good	6		39.8291648	-82.963626	1	1	Celtis occidentalis
323 Juglans nigra Wallut, Black Good 6 39,8211048 82,993616 1 1 Juglans nigra 324 Mours nibra Mulberry, Red Good 7 39,8290307 82,983626 1 1 Carya giabra Carya		-	· ·						1	1	ı • •
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255 Monus rubra		Y Y	·						1	1	_
326 Morus rubra Mulberry, Red Good 6 39,8290423 -82,963671 1 1 Carya glabra			•		11				1	1	
327 Acer negundo Boxelder Good 9 39,8288597 82,963668 1 1 Acer rubra 328 Gledisla triacanthos Locust, Honey Good 8 39,8288597 82,963655 1 1 Gledisla triacanthos 329 Cellis occidentalis Hackberry Good 30 39,8287999 82,96363 1 Celtis occidentalis Gledisla triacanthos 330 Gledisla infacanthos Locust, Honey Good 30 39,8287901 82,96363 1 Celtis occidentalis Gledisla triacanthos Cellis occidentalis Hackberry Good 7 39,8287666 82,96369 1 Celtis occidentalis Celtis occidentalis Hackberry Good 7 39,8287467 82,963652 1 Celtis occidentalis Celtis occidentalis Hackberry Good 7 39,828747 82,963652 1 Celtis occidentalis Celt			•		/ 6				1	1	
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330 Gleditsia triacanthos Locust, Honey Good 30 39.8287901 82.963638 1 4 Gleditsia triacanthos 331 Celtis occidentalis Hackberry Good 7 39.8287666 82.963666 1 1 Celtis occidentalis 332 Celtis occidentalis Hackberry Good 7 39.8287271 82.963652 1 1 Celtis occidentalis 334 Morus rubra Mulberry, Red Good 8 39.8287134 82.963664 1 1 Carya glabra 335 Prunus serotina Cherry, Black Good 7 39.8287371 82.963661 1 1 Carya glabra 336 Morus rubra Mulberry, Red Good 64 multi-trunk 39.8286999 82.963655 8 5 Carya glabra 337 Morus rubra Mulberry, Red Good 64 multi-trunk 39.8286999 82.963657 1 Acer rubra Acer rubr			•		10				1	1	
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333 Celtis occidentalis Hackberry Good 7 39.8287271 82.963664 1 1 Celtis occidentalis 334 Morus rubra Mulberry, Red Good 8 39.8287134 82.963681 1 1 Carya glabra 335 Prunus serotina Carya glabra 336 Morus rubra Mulberry, Red Good 64 multi-trunk 39.828599 82.963655 8 5 Carya glabra 337 Morus rubra Mulberry, Red Good 14 double trunk 39.8285937 82.963655 8 5 Carya glabra 338 Acer negundo Boxelder Good 12 39.8285176 82.963667 1 1 Acer rubra		Celtis occidentalis			7		39.8287666	-82.963606	1	1	Celtis occidentalis
334 Morus rubra Mulberny, Red Good 8 39.8287134 -82.963681 1 1 1 Carya glabra	332	Celtis occidentalis	Hackberry	Good	7		39.8287457	-82.963652	1	1	Celtis occidentalis
335 Prunus serotina Cherry, Black Good 7 39.8286381 82.963673 1 1 Prunus serotina 336 Morus rubra Mulberry, Red Good 64 multi-trunk 39.8286385 8 5 Carya glabra 337 Morus rubra Mulberry, Red Good 14 double trunk 39.828537 82.963647 2 2 Carya glabra 338 Acer negundo Boxelder Good 12 39.8285176 82.963667 1 1 Acrya rubra Acer negundo Boxelder Good 13 39.8284511 82.963667 1 1 Celtis occidentalis Hackberry Good 11 39.8284511 82.963665 1 1 Celtis occidentalis Celtis occidentalis Hackberry Good 12 39.8284511 82.963665 1 1 Carya glabra Celtis occidentalis Hackberry Good 12 39.8284511 82.963665 1 1 Carya glabra Celtis occidentalis Hackberry Good 12 39.82845172 82.963679 1 1 Carya glabra Celtis occidentalis Hackberry Good 12 39.82845172 82.963666 1 1 Celtis occidentalis Celtis occidentalis Hackberry Good 12 39.8284514 82.963669 1 1 Celtis occidentalis Celtis occidentalis Hackberry Good 7 39.8283164 82.963681 1 1 Celtis occidentalis Celtis occidentalis Hackberry Good 8 39.8282853 82.963763 1 1 Celtis occidentalis Celtis occidentalis Celtis occidentalis Hackberry Good 8 39.8282838 82.963710 1 1 Celtis occidentalis Celtis occidentalis Hackberry Good 14 double trunk 39.8282338 82.963714 1 1 Celtis occidentalis Celtis occidentalis Hackberry Good 13 39.8282183 82.963752 2 2 2 2 2 2 2 2 2	333		Hackberry	Good	7		39.8287271	-82.963664	1	1	Celtis occidentalis
336 Morus rubra Mulberry, Red Good 64 multi-trunk 39.8285999 -82.963655 8 5 Carya glabra			• •		8				1	1	' '
337 Morus rubra Mulberry, Red Good 14 double trunk 39.8285337 -82.963647 2 2 Carya glabra 338 Acer negundo Boxelder Good 12 39.8285176 -82.963667 1 1 Acer rubra 339 Celtis occidentalis Hackberry Good 13 39.8284151 -82.963709 1 2 Cettis occidentalis 340 Celtis occidentalis Hackberry Good 11 39.8284161 -82.963665 1 1 Celtis occidentalis 341 Morus rubra Mulberry, Red Good 12 39.8284172 -82.963679 1 1 Cettis occidentalis 342 Celtis occidentalis Hackberry Good 12 39.8284099 -82.963646 1 1 Cettis occidentalis 343 Celtis occidentalis Hackberry Good 12 39.8284164 -82.96369 1 1 Cettis occidentalis 344 Celtis occidentalis Hackberry Good 7 39.8283164 -82.963681 1 1 Cettis occidentalis 345 Celtis occidentalis Hackberry Good 8 39.8282923 -82.963683 1 1 Cettis occidentalis 346 Acer negundo Boxelder Good 8 39.8282838 -82.963701 1 1 Acer rubra 347 Morus rubra Mulberry, Red Good 14 double trunk 39.828236 -82.963714 1 1 Cettis occidentalis 349 Morus rubra Mulberry, Red Good 7 39.8282163 -82.963714 1 1 Cettis occidentalis 349 Morus rubra Mulberry, Red Good 7 39.8282065 -82.963757 1 2 Cettis occidentalis 349 Morus rubra Mulberry, Red Good 7 39.8282065 -82.963757 1 2 Cettis occidentalis 349 Morus rubra Mulberry, Red Good 7 39.8282065 -82.963757 1 2 Cettis occidentalis 340 Celtis occidentalis Hackberry Good 8 39.8281314 -82.963711 1 1 Cettis occidentalis 340 Celtis occidentalis 3			• •		7	10. (1	1	
338 Acer negundo Boxelder Good 12 39.8285176 -82.963667 1 1 Acer rubra 339 Celtis occidentalis Hackberry Good 13 39.8284161 -82.963665 1 2 Celtis occidentalis 340 Celtis occidentalis Hackberry Good 11 39.8284161 -82.963665 1 1 Celtis occidentalis 341 Morus rubra Mulberry, Red Good 12 39.8284172 -82.963679 1 1 Certis occidentalis 342 Celtis occidentalis Hackberry Good 12 39.8284099 -82.963646 1 1 Certis occidentalis 343 Celtis occidentalis Hackberry Good 7 39.8283164 -82.96369 1 1 Celtis occidentalis 344 Celtis occidentalis Hackberry Good 7 39.8283164 -82.963681 1 1 Celtis occidentalis 345 Celtis occidentalis Hackberry Good 8			•						8	5	
339 Celtis occidentalis Hackberry Good 13 39.828451 -82.963709 1 2 Celtis occidentalis			•			double trunk			2	2	1 1
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341 Morus rubra Mulberry, Red Good 12 39.8284172 -82.963679 1 1 Carya glabra 342 Celtis occidentalis Hackberry Good 12 39.8284099 -82.963646 1 1 Celtis occidentalis 343 Celtis occidentalis Hackberry Good 12 39.8283634 -82.96369 1 1 Celtis occidentalis 344 Celtis occidentalis Hackberry Good 7 39.8283164 -82.963681 1 1 Celtis occidentalis 345 Celtis occidentalis Hackberry Good 8 39.8282923 -82.963683 1 1 Celtis occidentalis 346 Acer negundo Boxelder Good 8 39.8282838 -82.963701 1 1 Acer rubra 347 Morus rubra Mulberry, Red Good 14 double trunk 39.8282183 -82.963712 2 2 Carya glabra 349 Morus rubra Mulberry, Red Good			•						1	1	
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345 Celtis occidentalis Hackberry Good 8 39.8282923 -82.963683 1 1 Celtis occidentalis 346 Acer negundo Boxelder Good 8 39.8282838 -82.963701 1 1 Acer rubra 347 Morus rubra Mulberry, Red Good 14 double trunk 39.8282326 -82.963752 2 2 Carya glabra 348 Celtis occidentalis Hackberry Good 1 39.8282183 -82.963714 1 1 Celtis occidentalis 349 Morus rubra Mulberry, Red Good 7 39.8282065 -82.963783 1 1 Carya glabra 350 Celtis occidentalis Hackberry Good 13 39.8281516 -82.963757 1 2 Celtis occidentalis 351 Celtis occidentalis Hackberry Good 8 39.8281314 -82.96372 1 1 Celtis occidentalis 352 Celtis occidentalis Hackberry Good		Celtis occidentalis	•				39.8283634	-82.96369	1	1	Celtis occidentalis
346 Acer negundo Boxelder Good 8 39.8282838 -82.963701 1 1 Acer rubra 347 Morus rubra Mulberry, Red Good 14 double trunk 39.8282326 -82.963752 2 2 Carya glabra 348 Celtis occidentalis Hackberry Good 11 39.8282183 -82.963714 1 1 Celtis occidentalis 349 Morus rubra Mulberry, Red Good 7 39.8282065 -82.963783 1 1 Carya glabra 350 Celtis occidentalis Hackberry Good 13 39.8281516 -82.963757 1 2 Celtis occidentalis 351 Celtis occidentalis Hackberry Good 8 39.8281444 -82.963711 1 1 Celtis occidentalis 352 Celtis occidentalis Hackberry Good 6 39.8281314 -82.96372 1 1 Celtis occidentalis			•		7				1	1	
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352 Celtis occidentalis Hackberry Good 6 39.8281314 -82.96372 1 1 Celtis occidentalis			•		8				1	1	
353 Acer negundo Boxelder Good 11 39.8281299 -82.963776 1 1 Acer rubra			•		6				1	1	
	353	Acer negundo	Boxelder	Good	11		39.8281299	-82.963776	1	1	Acer rubra

EXXCEL PROJECT MANAGEN
TALBOTT PROPERT
WESTERN PORTION
SCPZ REFORESTATION
FRANKLIN COUNTY, (1)

STREAM CORRIDOR PROTECTION ZONE REFORESTATION SUMMARY TABLE

DRAWING NO.: **EC506**SHEET 10 OF 14

Dec												
Color		ID	Latin Name	Common Name	Condition	DBH (INCHES)	Notes	Lattitude	Longitude	Stems at Breast Height	Replacement Quantity	Replacement Species
Section Continues Contin	f					7				1	1	•
Accordance		355		Hackberry	Good	6		39.8281595	-82.963862	1	1	Celtis occidentalis
Seminar Colors				•		7				1	1	
29.00 1,00			-			6 7				1	1	
Monte Color				•		7				1	1	• •
Control Processor Cont			•	· ·		6				1	1	
Second Conference Content Cont				·						1	1	
Deciding incompanies							double transfe			1	2	
Geodesia frameworks 2				•			double trunk			1	1	
				, ,		, 21	multi-trunk			3	3	
Cells Scalewards Processor Cells Cel		366	Juglans nigra	· · · · · · · · · · · · · · · · · · ·	Good	6		39.8281972	-82.964782	1	1	Juglans nigra
			•			10				1	1	
STO				•		7				1	1	
2017 Online Selectifies 1				• .			double trunk			2	2	
Section Comparison Compar						7	GOGDIO CIGINA			1	1	
Paper		372	Prunus serotina		Good	8		39.827875	-82.965064	1	1	Prunus serotina
277			•							1	1	"
573 College Control Part Fischer Name College College College College College College College College College College College College College College College College College College College College College College College College			-	· ·						1	1	•
377 Appeten open Meltru Disch Good 7			•	·						1	1	
249 Appellet Args Verland, Biscor Sood 40				•		•				1	1	
300		378	Prunus serotina	Cherry, Black	Good	15	double trunk	39.8276803	-82.965096	2	2	•
249 Augistic Night Waster State Company Part Blook Company C			•			35	multi-trunk			4	5	
Sept. Applicate region Wash L, Black Good 9 98.0774-95 60.0851 1 1 Augistra region 1 1 Augistra region 1 1 Augistra region 1 1 Augistra region 1 1 1 1 1 1 1 1 1						7				1	1	•
388			•	•		, 8				1	1	•
385 Colis southerline Hascerry Good 5 38,827358 61,8267618 1 1 Celta coction-tate 1 1 1 1 1 1 1 1 1			•	·						1	1	
586		384	Celtis occidentalis	Hackberry	Good	8		39.8274358	-82.965081	1	1	
597 Popular delicitions Columnocal Good 19 98.877208 92.66119 1 Popular delicitions 1 Popular delici				•						1	1	
988 Pinalium deficialities Colormocod Cocid 12 98.872/951 1 1 Pippulus deficioles 10 Pippulus deficioles 10 10 10 10 10 10 10 1			-							1	2	
959			•							1	1	-
301 Centre accommanials Habborny Cocc 13 39.827288 42.855046 1 2 Centre accommanials Habborny Cocc 8 Mulli-turu Septimbri 14.850607 14 Centre accommanials Control accom			•							1	1	
992 Wintura ammentana				•						1	1	
385 Certis controllerities Bacebarry Good 8 98.8273394 24.980015 1 1 Certis controllarities 396 Acert scondinatives 4 4 4 4 4 4 4 4 4				•			10° (1			1	2	
Sail				·			multi-trunk			3	4	
Section Sect				•						1	1	
398 Company			-							1	1	
368 Gladdiala Paracarlinos Locust Honey Good 14 38.8775625 82.865028 1 1 Celtis cocidentalis Hosbierry Good 13 38.8773668 82.865027 1 2 Celtis cocidentalis Hosbierry Good 13 38.8773668 82.865027 1 2 Celtis cocidentalis Hosbierry Good 6 38.8774419 82.865027 1 1 Celtis cocidentalis Hosbierry Good 6 38.8774419 82.865027 1 1 Celtis cocidentalis Hosbierry Good 7 38.8774419 82.865027 1 2 Celtis cocidentalis Hosbierry Good 14 38.8774419 82.865027 1 2 Celtis cocidentalis Hosbierry Good 14 Good 1			•							1	1	'
398 Celts cocidentalis Hochspry Good 9 39.82/356 32.856002 1 2 Celts cocidentalis Hochspry Good 13 39.82/3569 32.856002 1 2 Celts cocidentalis Hochspry Good 0 39.82/41 \$2.06002 1 1 Celts cocidentalis 402 Acet saccharum August Augus				·						1	1	
401 Cellis cocidentalis Hackberny Good 13 38.827399 32.868037 1 2 Celtis cocidentalis 402 Acer saccharum Hackberny Good 7 38.8774318 82.969043 1 1 Acer saccharum Acet s										1	1	
A01				•						1	2	
403 Celtis occidentelis Hashberry Good 14 38.827454 82.965007 1 2 Celtis occidentalis 404 Macura pomífera Cossp. Orange Congrego Cossp. Orange Congrego Cossp. Orange Coss		401	Celtis occidentalis	•	Good	6		39.827421	-82.965022	1	1	Celtis occidentalis
Add						7				1	1	
405				•			daubla truale			1	2	
Add			•	•						3	5 5	<u> </u>
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444 Celtis occidentalis Hackberry Good 7 39.8281127 -82.964123 1 1 Celtis occidentalis				•		36 -	multi-trunk			5	5	
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ID	Latin Name	Common Name	Condition	DBH (INCHES)	Notes	Lattitude	Longitude	Stems at Breast Height	Replacement Quantity	Replacement Species
446	Celtis occidentalis	Hackberry	Good	35	multi-trunk	39.8281366	-82.964086	5	5	Celtis occidentalis
447	Celtis occidentalis	Hackberry	Good	13	double trunk	39.8281053	-82.964054	2	2	Celtis occidentalis
448	Celtis occidentalis	Hackberry	Good	19	double trunk	39.8281038	-82.964052	2	3	Celtis occidentalis
449	Celtis occidentalis	Hackberry	Good	8		39.8281365	-82.964036	1	1	Celtis occidentalis
450	Celtis occidentalis	Hackberry	Good	10		39.8281304	-82.964024	1	1	Celtis occidentalis
451	Celtis occidentalis	Hackberry	Good	14	double trunk	39.8281255	-82.964029	2	2	Celtis occidentalis
452	Celtis occidentalis	Hackberry	Good	8		39.8280898	-82.964014	1	1	Celtis occidentalis
453	Acer negundo	Boxelder	Good	8		39.8280956	-82.963968	1	1	Acer rubra
454	Celtis occidentalis	Hackberry	Good	22	multi-trunk	39.8281056	-82.96398	3	3	Celtis occidentalis
455	Celtis occidentalis	Hackberry	Good	9		39.8281013	-82.963933	1	1	Celtis occidentalis
456	Celtis occidentalis	Hackberry	Good	9		39.8281021	-82.963911	1	1	Celtis occidentalis
457	Juglans nigra	Walnut, Black	Good	6		39.8280973	-82.963888	1	1	Juglans nigra
458	Acer negundo	Boxelder	Good	6		39.8281044	-82.963872	1	1	Acer rubra
459	Morus rubra	Mulberry, Red	Good	38	multi-trunk	39.8280881	-82.96385	5	5	Carya glabra
460	Morus rubra	Mulberry, Red	Good	6		39.8280787	-82.963798	1	1	Carya glabra
461	Celtis occidentalis	Hackberry	Good	20		39.8280883	-82.963684	1	3	Celtis occidentalis
462	Juglans nigra	Walnut, Black	Good	11		39.8280914	-82.963624	1	1	Juglans nigra
463	Juglans nigra	Walnut, Black	Good	13		39.8281158	-82.963632	1	2	Juglans nigra
464	Celtis occidentalis	Hackberry	Good	14		39.8281217	-82.963635	1	2	Celtis occidentalis
								ΤΩΤΔΙ	788	

- Locations are approximate and based on sub-meter accuracy GPS.

- Locations are approximate and based on sub-meter accuracy GPS.
 Honeysuckle bush (Lonicera spp.) and Ash (Fraxinus spp.) were not included in this stem survey.
 This tree inventory and associated mitigation has been conducted in accordance with the City of Columbus Executive Order 2015-01 and coordination with Columbus Recreation & Parks Department.
 Deviations from the proposed replacement species must be approved in advance by the City of Columbus Recreation and Parks Department.
 All replacement trees to be planted within the new 7.23 acre reforestation portion of the SCPZ at 20-foot on center (10-foot radius per tree) distribution.
 All plant materials shall be in accordance with the most recent ANSI Z60.1 publication.
 Per City of Columbus requirements, all replacement trees shall be between 2 to 3 inch diameter at breast height (caliper).

SEEDING DATES	SPECIES	LB./1000 FT2	LB/ACRE
MARCH 1 TO AUGUST 15	OATS TALL FESCUE ANNUAL RYEGRASS	3 1 1	128 (4 BUSHEL) 40 40
	PERENNIAL RYEGRASS TALL FESCUE ANNUAL RYEGRASS	1 1 1	40 40 40
	ANNUAL RYEGRASS PERENNIAL RYEGRASS CREEPING RED FESCUE KENTUCKY BLUEGRASS	1.25 3.25 0.4 0.4	55 142 17 17
	OATS TALL FESCUE ANNUAL RYEGRASS	3 1 1	128 (3 BUSHEL) 40 40
AUGUST 16TH TO NOVEMBER	OATS TALL FESCUE ANNUAL RYEGRASS	3 1 1	112 (2 BUSHEL) 40 40
	WHEAT TALL FESCUE ANNUAL RYEGRASS	3 1 1	120 (2 BUSHEL) 40 40
	PERENNIAL RYE TALL FESCUE ANNUAL RYEGRASS	1 1 1	40 40 40
	ANNUAL RYEGRASS PERENNIAL RYEGRASS CREEPING RED FESCUE KENTUCKY BLUEGRASS	1.25 3.25 0.4 0.4	40 40 40
NOVEMBER 1 TO FEB. 29	USE MULCH ONLY OR DORMANT	SEEDING	•

- STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS AND SEDIMENT TRAPS SHALL BE INSTALLED AND STABILIZED WITH TEMPORARY SEEDING PRIOR TO GRADING THE REST OF THE CONSTRUCTION SITE.
- TEMPORARY SEED SHALL BE APPLIED BETWEEN CONSTRUCTION OPERATIONS ON SOIL THAT WILL NOT BE GRADED OR REWORKED FOR 21 DAYS OR GREATER. THESE IDLE AREAS SHALL BE SEEDED WITHIN 7 DAYS AFTER GRADING.
- THE SEEDBED SHALL BE PULVERIZED AND LOOSE TO ENSURE THE SUCCESS OF ESTABLISHING VEGETATION. TEMPORARY SEEDING SHOULD BE POSTPONED IF IDEAL SEEDBED PREPARATION IS NOT POSSIBLE.
- 4. SOIL AMENDMENTS TEMPORARY VEGETATION SEEDING RATES SHALL ESTABLISH ADEQUATE STANDS OF VEGETATION, WHICH MAY REQUIRE THE USE OF SOIL AMENDMENTS. BASE RATES FOR LIME AND FERTILIZER SHALL BE USED.
- 5. SEEDING METHOD SEED SHALL BE APPLIED UNIFORMLY WITH A CYCLONE SPREADER, DRILL, CULTIPACKER SEEDER, OR HYDROSEEDER. WHEN FEASIBLE, SEED THAT HAS BEEN BROADCAST SHALL BE COVERED BY RAKING OR DRAGGING AND THEN LIGHTLY TAMPED INTO PLACE USING A ROLLER OR CULTIPACKER. IF HYDROSEEDING IS USED, THE SEED AND FERTILIZER WILL BE MIXED ON-SITE AND THE SEEDING SHALL BE DONE IMMEDIATELY AND WITHOUT INTERRUPTION.

DETAIL 1 TEMPORARY SEEDING

- 1. MULCH AND OTHER APPROPRIATE VEGETATIVE PRACTICES SHALL BE APPLIED TO DISTURBED AREAS WITHIN 7 DAYS OF GRADING IF THE AREA IS TO REMAIN DORMANT (UNDISTURBED) FOR MORE THAN 21 DAYS OR ON AREAS AND PORTIONS OF THE SITE WHICH CAN BE BROUGHT TO FINAL GRADE.
- 2. MULCH SHALL CONSIST OF ONE OF THE FOLLOWING:
- STRAW STRAW SHALL BE UNROTTEN SMALL GRAIN STRAW APPLIED AT THE RATE OF 2 TONS/AC. OR 90 LB./1.000 SQ. FT. (TWO TO THREE BALES). THE STRAW MULCH SHALL BE SPREAD UNIFORMLY BY HAND OR MECHANICALLY SO THE SOIL SURFACE IS COVERED, FOR UNIFORM DISTRIBUTION OF HAND-SPREAD MULCH, DIVIDE THE AREA INTO APPROXIMATELY 1,000 SQ. FT. SECTIONS AND PLACE TWO 45-LB. BALES OF STRAW IN
- HYDROSEEDERS- WOOD CELLULOSE FIBER SHOULD BE USED AT 2,000 LB./AC. OR 46 LB./1,000 SQ. FT.
- OTHER ACCEPTABLE MULCHES INCLUDE MULCH MATTINGS AND ROLLED EROSION CONTROL PRODUCTS APPLIED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS OR WOOD MULCH/CHIPS APPLIED AT 10-20 TONS/AC.
- 3. MULCH ANCHORING MULCH SHALL BE ANCHORED IMMEDIATELY TO MINIMIZE LOSS BY WIND OR RUNOFF. THE FOLLOWING ARE ACCEPTABLE METHODS FOR ANCHORING MULCH:
- MECHANICAL USE A DISK, CRIMPER, OR SIMILAR TYPE TOOL SET STRAIGHT TO PUNCH OR ANCHOR THE MULCH MATERIAL INTO THE SOIL. STRAW MECHANICALLY ANCHORED SHALL NOT BE FINELY CHOPPED BUT LEFT TO GENERALLY LONGER THAN 6 INCHES.
- MULCH NETTINGS USE ACCORDING TO MANUFACTURER'S RECOMMENDATIONS, FOLLOWING ALL PLACEMENT AND ANCHORING REQUIREMENTS. USE IN AREAS OF WATER CONCENTRATION AND STEEP SLOPES TO HOLD MULCH IN PLACE.
- SYNTHETIC BINDERS FOR STRAW MULCH, SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRI-TAC). DCA-70. PETROSET. TERRA TACK OR EQUAL MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER. ALL APPLICATIONS OF SYNTHETIC BINDERS MUST BE CONDUCTED IN SUCH A MANNER WHERE THERE IS NOT CONTACT WITH WATERS OF THE
- WOOD CELLULOSE FIBER WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. THE FIBER BINDER SHALL BE APPLIED AT A NET DRY WEIGHT OF 750 LB./ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 LB./100 GAL. OF WOOD CELLULOSE FIBER.

DETAIL3 MULCHING N.T.S.

SEED MIX	SEE	NOTES	
SEED MIX	LBS./ACRE LBS./1,000 SQ. FEET		NOTES
	GEN	ERAL USE	
CREEPING RED FESCUE DOMESTIC RYEGRASS KENTUCKY BLUEGRASS	20-40 10-20 20-40	1/2-1 1/4-1/2 1/2-1	FOR CLOSE MOWING & FOR WATERWAYS WITH < 2.0 FT/SEC VELOCITY
TALL FESCUE	40-50	1-1 1/4	
TURF-TYPE (DWARF) FESCUE	90	2 1/4	
	STEEP BANK	S OR CUT SLOPES	•
TALL FESCUE	40-50	1-1 1/4	
CROWN VETCH FALL FESCUE	10-20 20-30	1/4-1/2 1/2-3/4	DO NOT SEED LATER THAN AUGUST
FLAT PEA FALL FESCUE	20-25 20-30	1/2-3/4 1/2-3/4	DO NOT SEED LATER THAN AUGUST
·	ROAD DITCI	HES AND SWALES	·
TALL FESCUE	40-50	1-1 1/4	
TURF-TYPE (DWARF) FESCUE KENTUCKY BLUEGRASS	90 5	2 1/4 0.1	
		LAWNS	
KENTUCKY BLUEGRASS PERENNIAL RYEGRASS	100-120	2 2	
KENTUCKY BLUEGRASS CREEPING RED FESCUE	100-120	2 1-1/2	FOR SHADED AREAS

NOTE: OTHER APPROVED SPECIES MAY BE SUBSTITUTED.

SITE PREPARATION

- 1. SUBSOILER, PLOW, OR OTHER IMPLEMENT SHALL BE USED TO REDUCE SOIL COMPACTION AND ALLOW MAXIMUM INFILTRATION. (MAXIMIZING INFILTRATION WILL HELP CONTROL BOTH RUNOFF RATE AND WATER QUALITY.) SUBSOILING SHOULD BE DONE WHEN THE SOIL MOISTURE IS LOW ENOUGH TO ALLOW THE SOIL TO CRACK OR FRACTURE. SUBSOILING SHALL NOT BE DONE ON SLIP-PRONE AREAS WHERE SOIL PREPARATION SHOULD BE LIMITED TO WHAT IS NECESSARY FOR ESTABLISHING VEGETATION.
- 2. THE SITE SHALL BE GRADED AS NEEDED TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION AND SEEDING.
- 3. TOPSOIL SHALL BE APPLIED WHERE NEEDED TO ESTABLISH VEGETATION.

- 1. LIME AGRICULTURAL GROUND LIMESTONE SHALL BE APPLIED TO ACID SOIL AS RECOMMENDED BY A SOIL TEST. IN LIEU OF A SOIL TEST, LIME SHALL BE APPLIED AT THE RATE OF 100 POUNDS PER 1,000 SQ. FT. OR 2 TONS PER ACRE.
- 2. FERTILIZER FERTILIZER SHALL BE APPLIED AS RECOMMENDED BY A SOIL TEST. IN PLACE OF A SOIL TEST, FERTILIZER SHALL BE
- APPLIED AT A RATE OF 25 POUNDS PER 1,000 SQ. FT. OR 1000 POUNDS PER ACRE OF A 10-10-10 OR 12-12-12 ANALYSES.
- 3. THE LIME AND FERTILIZER SHALL BE WORKING INTO THE SOIL WITH A DISK HARROW, SPRING-TOOTH HARROW, OR OTHER SUITABLE FIELD IMPLEMENT TO A DEPTH OF 3 INCHES. ON SLOPING LAND, THE SOIL SHALL BE WORKED ON THE CONTOUR.

SEEDING DATES AND SOIL CONDITIONS

SEEDING SHOULD BE DONE MARCH 1 TO MAY 31 OR AUGUST 1 TO SEPTEMBER 30. IF SEEDING OCCURS OUTSIDE OF THE ABOVE-SPECIFIED DATES, ADDITIONAL MULCH AND IRRIGATION MAY BE REQUIRED TO ENSURE A MINIMUM OF 80% GERMINATION. TILLAGE FOR SEEDBED PREPARATION SHOULD BE DONE WHEN THE SOIL IS DRY ENOUGH TO CRUMBLE AND NOT FORM RIBBONS WHEN COMPRESSED BY HAND. FOR WINTER SEEDING, SEE THE FOLLOWING SECTION ON DORMANT SEEDING.

DORMANT SEEDING

- SEEDINGS SHOULD NOT BE MADE FROM OCTOBER 1 THROUGH NOVEMBER 20. DURING THIS PERIOD, THE SEEDS ARE LIKELY TO GERMINATE BUT PROBABLY WILL NOT BE ABLE TO SURVIVE THE WINTER.
- 2. THE FOLLOWING METHODS MAY BE USED FOR "DORMANT SEEDING":
- FROM OCTOBER 1 THROUGH NOVEMBER 20, PREPARE THE SEEDBED, ADD THE REQUIRED AMOUNTS OF LIME AND FERTILIZER, THEN MULCH AND ANCHOR. AFTER NOVEMBER 20, AND BEFORE MARCH 15, BROADCAST THE SELECTED SEED MIXTURE. INCREASE THE SEEDING RATES BY 50% FOR THIS TYPE OF SEEDING.
- FROM NOVEMBER 20 THROUGH MARCH 15, WHEN SOIL CONDITIONS PERMIT, PREPARE THE SEEDBED, LIME AND FERTILIZER, APPLY THE SELECTED SEED MIXTURE, MULCH AND ANCHOR. INCREASE THE SEEDING RATES BY 50% FOR THIS TYPE OF SEEDING.
- APPLY SEED UNIFORMLY WITH A CYCLONE SEEDER, DRILL, CULTIPACKER SEEDER, OR HYDRO-SEEDER (SLURRY MAY INCLUDE SEED AND FERTILIZER) ON A FIRM, MOIST SEEDBED.
- WHERE FEASIBLE, EXCEPT WHEN A CULTIPACKER TYPE SEEDER IS USED, THE SEEDBED SHOULD BE FIRMED FOLLOWING SEEDING OPERATIONS WITH A CULTIPACKER, ROLLER, OR LIGHT DRAG. ON SLOPING LAND, SEEDING OPERATIONS SHOULD BE ON THE CONTOUR

MULCH MATERIALS SHALL BE APPLIED IMMEDIATELY AFTER SEEDING. DORMANT SEEDING SHALL BE MULCHED. 100% OF THE GROUND SURFACE SHALL BE COVERED WITH AN APPROVED MATERIAL.

- STRAW IF STRAW IS USED IT SHALL BE UNROTTEN SMALL-GRAIN STRAW APPLIED AT THE RATE OF 2 TONS PER ACRE OR 90 POUNDS (TWO TO THREE BALES) PER 1,000 SQ. FT. THE MULCH SHALL BE SPREAD UNIFORMLY BY HAND OR MECHANICALLY APPLIED SO THE SOIL SURFACE IS COVERED. FOR UNIFORM DISTRIBUTION OF HAND-SPREAD MULCH, DIVIDE AREA INTO APPROXIMATELY 1,000 SQ. FT. SECTIONS AND SPREAD TWO 45-LB. BALES OF STRAW IN EACH SECTION.
- HYDROSEEDERS IF WOOD CELLULOSE FIBER IS USED, IT SHALL BE APPLIED AT 2,000 LB./AC. OR 46 LB./1,000 SQ. FT.
- OTHER OTHER ACCEPTABLE MULCHES INCLUDE ROLLED EROSION CONTROL MATTINGS OR BLANKETS APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS OR WOOD CHIPS APPLIED AT 6 TONS PER ACRE.
- 3. STRAW AND MULCH ANCHORING METHODS

BE USED AT RATES SPECIFIED BY THE MANUFACTURER.

STRAW AND MULCH SHALL BE ANCHORED IMMEDIATELY TO MINIMIZE LOSS BY WIND OR WATER.

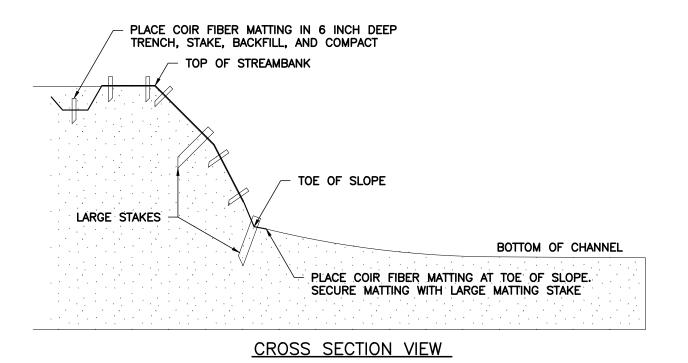
- MECHANICAL A DISK, CRIMPER, OR SIMILAR TYPE TOOL SHALL BE SET STRAIGHT TO PUNCH OR ANCHOR THE MULCH MATERIAL INTO THE SOIL. STRAW MECHANICALLY ANCHORED SHALL NOT BE FINELY CHOPPED BUT, GENERALLY, BE LEFT LONGER THAN 6 INCHES.
- MULCH NETTING NETTING SHALL BE USED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. NETTING MAY BE NECESSARY TO HOLD MULCH IN PLACE IN AREAS OF CONCENTRATED RUNOFF AND ON CRITICAL SLOPES.
- ASPHALT EMULSION ASPHALT SHALL BE APPLIED AS RECOMMENDED BY THE MANUFACTURER OR AT THE RATE OF 160 GALLONS PER
- SYNTHETIC BINDERS SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRI-TAC), DCA-70, PETROSET, TERRA TACK OR EQUIVALENT MAY
- WOOD CELLULOSE FIBER WOOD CELLULOSE FIBER SHALL BE APPLIED AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE. THE WOOD
- CELLULOSE FIBER SHALL BE MIXED WITH WATER AND THE MIXTURE CONTAINING A MAXIMUM OF 50 POUNDS CELLULOSE PER 100 GALLONS OF WATER.

IRRIGATION

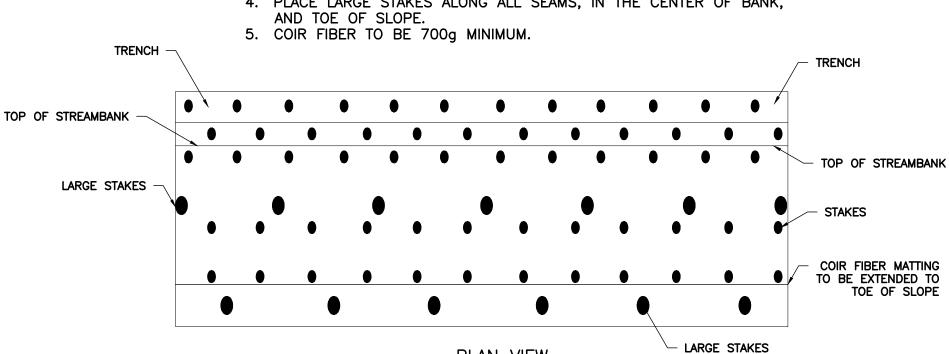
PERMANENT SEEDING SHALL INCLUDE IRRIGATION TO ESTABLISH VEGETATION DURING DRY WEATHER OR ON ADVERSE SITE CONDITIONS, WHICH REQUIRE ADEQUATE MOISTURE FOR SEED GERMINATION AND PLANT GROWTH.

IRRIGATION RATES SHALL BE MONITORED TO PREVENT EROSION AND DAMAGE TO SEEDED AREAS FROM EXCESSIVE RUNOFF.

DETAIL 2 PERMANENT SEEDING

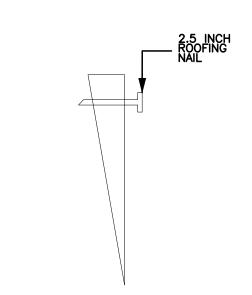


- 1. BANKS SHOULD BE SEEDED AND STRAWED PRIOR TO PLACEMENT OF
- MATTING. 2. USE COIR FIBER MATTING.
- 3. LARGE STAKES SHOULD NOT BE SPACED FURTHER THAN 18" APART.
- 4. PLACE LARGE STAKES ALONG ALL SEAMS, IN THE CENTER OF BANK,



PLAN VIEW

DETAIL 4 EROSION CONTROL MATTING



TYPICAL LARGE MATTING STAKE

THE WOOD STAKE SHALL HAVE THE FOLLOWING DIMENSIONS:

G LENGTH	17.00_IN_(43.18_CM)_(TAPERED_TO_POINT)				
DTH	1.5_IN_(3.81_CM)				
IICKNESS	1.5_IN_(3.81_CM)				

TYPICAL SMALL MATTING STAKE

THE WOOD STAKE SHALL HAVE THE FOLLOWING DIMENSIONS:

LEG LENGTH	11.00_IN_(27.94_CM)
HEAD WIDTH	1.25_IN_(3.18_CM)
HEAD THICKNESS	0.40_IN_(1.02_CM)
LEG WIDTH	0.60_IN_(1.52_CM)_(TAPERED_TO_POINT)
LEG THICKNESS	0.40_IN_(1.02_CM)
TOTAL LENGTH	12.00_IN_(30.48_CM)

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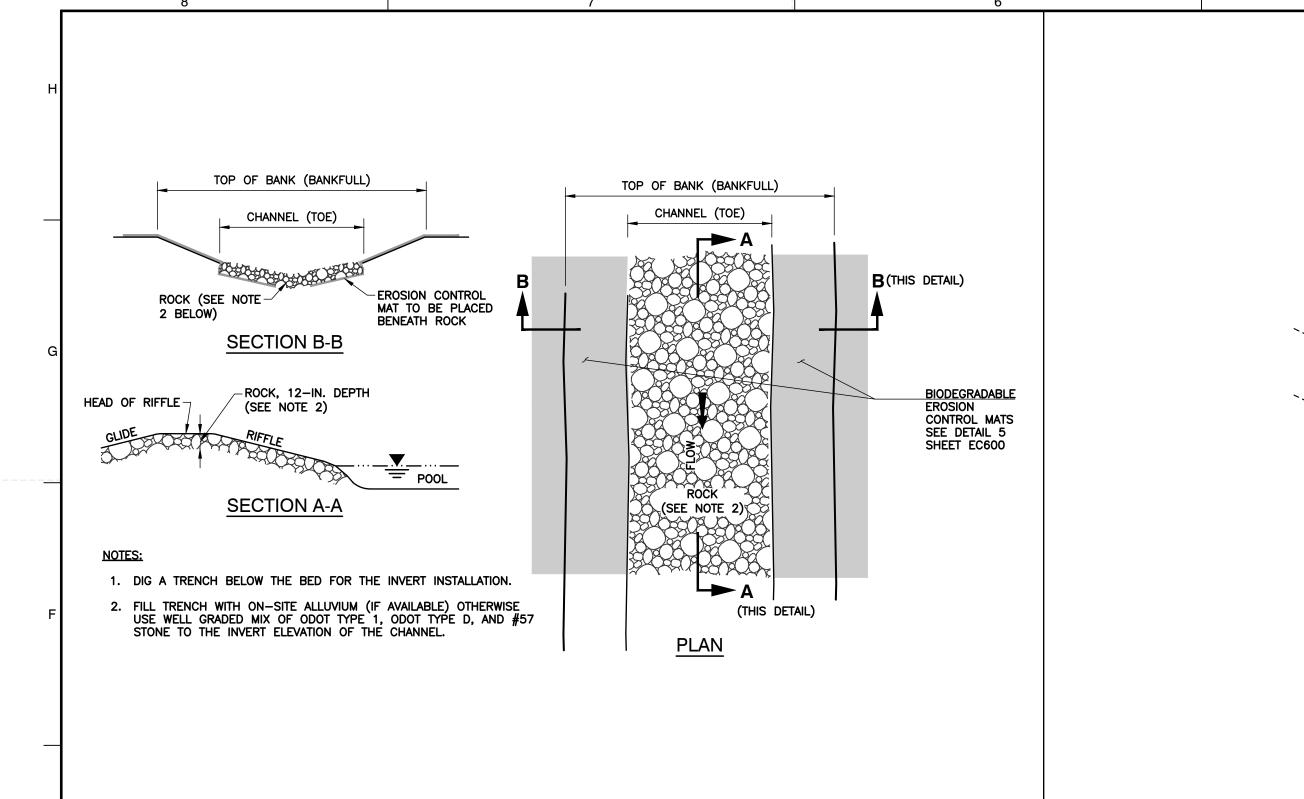
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N.T.S.

12 OF **14**



FABRIC. THE CONTRACTOR WILL BE REQUIRED TO FIT BOULDERS TIGHTLY.

THE CHANNEL INVERT AT AN ANGLE OF 20-30 DEG FROM THE ADJACENT TANGENT LINE.

7. ALL MATERIALS ARE TO BE APPROVED BY THE ENGINEER OR THE ENGINEER'S ON—SITE CONSTRUCTION OBSERVER.

GRADE ELEVATION AND SHALL BE PLACED THE ENTIRE LENGTH OF THE STRUCTURE.

3. DIMENSIONS AND SLOPES MAYBE ADJUSTED TO FIT BY THE ENGINEER.

4. A DOUBLE FOOTER BOULDER SHALL BE UTILIZED IN SAND BED MATERIAL.

DETAIL 5

ROCK CONSTRUCTED RIFFLE

FABRIC WRAP **FABRIC** 2"x4"x18" WOODEN POINT OF CURVATURE STAKE ROOT WAD LOGS (6"-10" STAKES MAY BE MADE BY SAWING DIA. & 6'-8' LONG) SPACED EVERY 4'-6' WOOD STAKES A 2x4 DIAGONALLY IN HALF. FOR ANCHORING FOOTER LOGS (12"-18" DIA. MIN.) REINFORCED EARTH **WOOD STAKE** BANKFULL EDGE OF WATER AT POINT OF NORMAL FLOW RESTORE DISTURBED AREA WITH TOPSOIL, TANGENCY (PT) SEEDING, MULCHING AND PLANTING NORMAL FLOW WATER BRANCH CUTTINGS LIVE STAKES SURFACE (EL. OF DOWNSTREAM RIFFLE REINFORCED EARTH GROUND **FXCAVATION** LIMITS TOE WOOD WOVEN GEOTEXTILE (SEE NOTE 2) 12" ABOVE WATER FOOTER LOGS SURFACE ANCHOR ROCK (TYP) TOE WOOD (SEE NOTE 2) **SECTION A-A** PLAN RIPARIAN PLANTINGS AND LIVE STAKES

NOTES:

- 1. IF AN APPROVED ON-SITE SOURCE IS AVAILABLE, SOD MATS LAYERS MAY BE USED INSTEAD OF REINFORCED EARTH. SOD MATS MAY ALSO BE OBTAINED FROM
- 2. TOE WOOD CONSISTS OF A MIX OF LOGS, BRANCHES, BRUSH, AND OTHER WOODY VEGETATION INSTALLED AT VARIOUS ANGLE, BUT NOT PARALLEL TO THE FLOW. LAYER THE WOOD WITH LARGER MATERIAL ON THE BOTTOM AND A MAT OF BRANCHES AS THE TOP LAYER. ANGLE ROOT WADS SLIGHTLY UPSTREAM INTO THE FLOW.

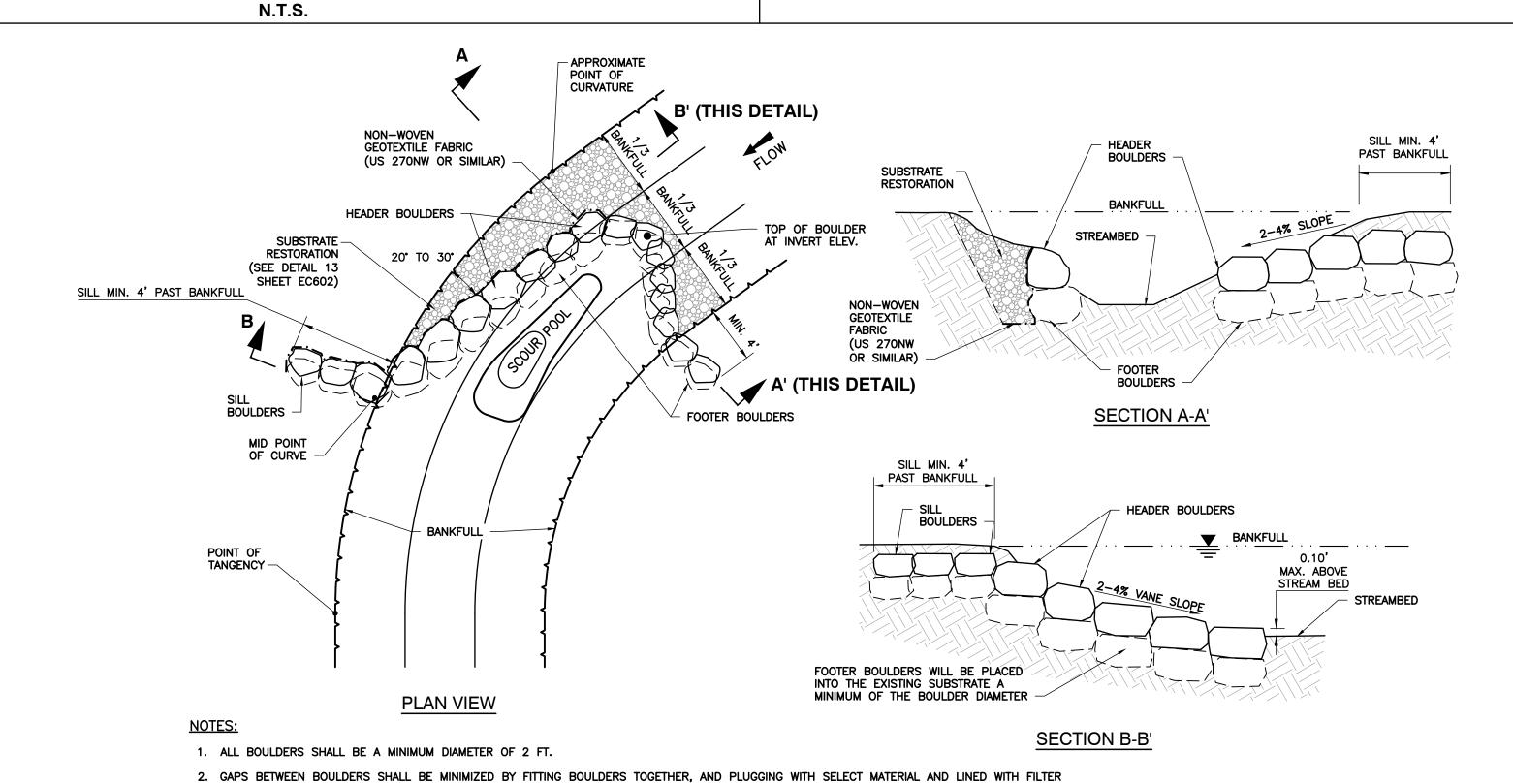
CLEARING AND EXCAVATION WORK ASSOCIATED WITH THE PROJECT. THE NUMBER OF LAYERS OF REINFORCED EARTH OR SOD MATS MAY VARY WITH THE BANK HEIGHT.

PLACE MULCH INSIDE

- 3. THE TOP LAYER OF TOE WOOD SHALL BE AT THE ESTABLISHED NORMAL FLOW ELEVATION.
- 4. FILL BETWEEN ROOT WADS WITH A MIX OF WOODY DEBRIS PER NOTE 2.
- . FILL BETWEEN ROOT WADS WITH A MIX OF WOODT DEBRIS PER NOT
- 5. LAYER REINFORCED EARTH AND CUTTINGS TO BANKFULL.

DETAIL 6 TOE WOOD WITH REINFORCED EARTH AND LIVE BRUSH LAYERING

N.T.S.



CUT TOP OF STAKE SQUARE

2 BUDS / SCARS (MIN.) AND
4 IN (MIN.) EXPOSED

3/4-2 IN. DIAMETER

MAKE ANGLED (45') CUT AT BUTT-END,
PLANT BUTT-END DOWN

REFER TO TABLE 3, SHEET EC504

FOR SPACING DEFOUNDEMENTS

FOR SPACING REQUIREMENTS

1. LIVE STAKES ARE USED FOR VEGETATIVE STREAM BANK STABILIZATION AND RIPARIAN HABITAT RESTORATION.

- 2. LIVE STAKES SHOULD BE PLACED AT THE STATIONS, OFFSETS, AND ELEVATIONS INDICATED ON THE STREAM MITIGATION DATA TABLE, STREAM MITIGATION PLAN, AND THIS DETAIL, OR AS DIRECTED BY THE ENGINEER. AT A MINIMUM, THE TYPE (SPECIES), SIZE, SPACING, AND QUANTITY OF LIVE STAKES SHOULD BE SPECIFIED IN THE STREAM MITIGATION DATA TABLE.
- 3. LIVE STAKES SHALL CONSIST OF WOODY LIVE CUTTINGS OF FAST-GROWING SHRUBS AND TREES (SUCH AS WILLOWS, DOGWOODS, BUTTONBUSH, ETC.), WHICH ARE CAPABLE OF GENERATING ROOTS FROM CUTTINGS WHEN PLACED IN WET OR MOIST SOIL.
- 4. LIVE STAKES SHALL BE AT LEAST ONE YEAR OLD, 0.75 INCH TO 2 INCHES IN DIAMETER, AND A MINIMUM OF 2 FEET LONG, WITH MOIST, GREEN, AND HEALTHY CAMBIUM AND GROWING LEAF BUDS LESS THAN 0.25 INCH. THE MAXIMUM LENGTH OF LIVE STAKES DEPENDS ON THE APPLICATION, AND SHALL BE AS SPECIFIED. WHEN LIVE STAKES ARE INSERTED IN RIP RAP OR STONE FILL, THEY SHALL BE LONG ENOUGH TO EXTEND THROUGH THE SURFACE OF THE RIP RAP OR STONE FILL AND AT LEAST HALF THE LENGTH SHALL BE INSERTED INTO THE SOIL, BELOW THE RIP RAP OR STONE FILL.
- 5. INSTALLING LIVE STAKES:
- 5.1. LIVE STAKES HARVESTED DURING DORMANCY SHALL BE MAINTAINED IN COLD STORAGE UNDER MOIST CONDITONS. SOAK THE BASE OF DORMANT—HARVESTED LIVE STAKES IN WATER AT LEAST 24 HOURS BEFORE PLANTING.
- 5.2. LIVE STAKES HARVESTED ON SITE SHOULD BE INSTALLED THE SAME DAY THEY ARE PREPARED.
- 5.3. PRIOR TO PLANTING, LIVE STAKES SHALL BE MAINTAINED IN A CONTINUOUSLY COOL, COVERED, AND MOIST STATE, WITH THE BASES SOAKING IN WATER.
- 5.4. CARE SHALL BE TAKEN NOT TO DAMAGE LIVE STAKES DURING INSTALLATION. THOSE DAMAGED SHALL BE LEFT IN PLACE AND SUPPLEMENTED WITH AN INTACT LIVE CUTTING/LIVE STAKE.
- 5.5. USE A DIGGING BAR, DIBBLE, OR SIMILAR TOOL TO MAKE A PILOT HOLE IN THE BANK 15 TO 18 INCHES DEEP.
- 5.6. PLACE THE LIVE STAKE IN THE PILOT HOLE, SO THAT A MINIMUM OF 4 INCHES AND TWO LIVE BUDS OF THE LIVE STAKE ARE EXPOSED.
- 5.7. TAMP THE SOIL AROUND LIVE STAKES.
- 6. ALL MATERIALS ARE TO BE APPROVED BY ENGINEER OR ENGINEER'S ONSITE CONSTRUCTION OBSERVER.
- 7. LIVE STAKES SHALL BE PAID FOR PER EACH.
- 8. PAYMENT SHALL INCLUDE ALL MATERIALS, EQUIPMENT, AND LABOR NECESSARY TO INSTALL THE LIVE STAKES.

DETAIL 8 LIVE STAKING DRAWING NO.: **EC801**SHEET 13 OF 14

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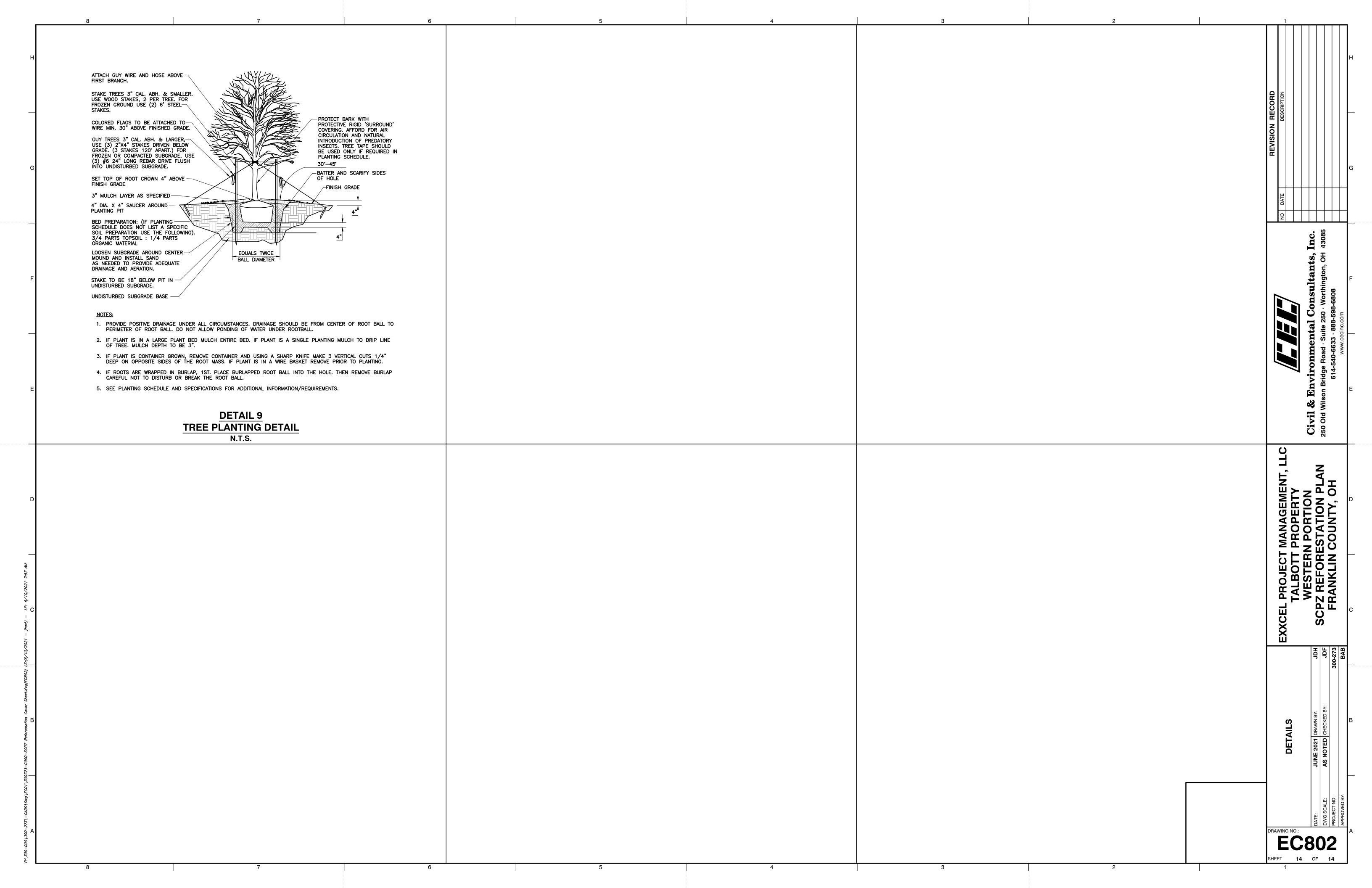
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DETAIL 7
BOULDER VANE AND J-HOOK

N.T.S.

5. VANE ARM SHALL TIE INTO THE BANK HALFWAY BETWEEN THE CHANNEL INVERT AND BANKFULL ELEVATIONS. THE ARM SHALL RISE AT 2%-4% FROM

6. NON-WOVEN GEOTEXTILE FILTER FABRIC (US 270NW OR SIMILAR) SHALL BE PLACED ON THE UPSTREAM SIDE OF THE VANE STRUCTURE TO PREVENT WASHOUT OF SEDIMENT THROUGH BOULDER GAPS. FILTER FABRIC SHALL EXTEND FROM THE BOTTOM OF THE FOOTER BOULDER TO THE FINISHED







Primary Headwater Habitat Evaluation Form

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HHEI Score (sum of metrics 1, 2, 3): SITE NAME/LOCATION Talbott Property West Portion- Upper Reach SITE NUMBER | 300-273 RIVER BASIN 05060001 DRAINAGE AREA (mi²) 0.33 LAT. 39.83110 LONG. -82.96050 RIVER CODE LENGTH OF STREAM REACH (ft) RIVER MILE DATE 11/05/20 **COMMENTS HHEI Point #1** SCORER C.Hall NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions STREAM CHANNEL **MODIFICATIONS:** SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes HHEI (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. Metric **PERCENT PERCENT Points** BLDR SLABS [16 pts] SILT [3 pt] 5% 0% BOULDER (>256 mm) [16 pts] LEAF PACK/WOODY DEBRIS [3 pts] 0% 5% **Substrate** 0% BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] Max = 400% 10% COBBLE (65-256 mm) [12 pts] CLAY or HARDPAN [0 pt] 55% 0% GRAVEL (2-64 mm) [9 pts] MUCK [0 pts] 20 20% 0% SAND (<2 mm) [6 pts] ARTIFICIAL [3 pts] Total of Percentages of (B) (A) Substrate Percentage 15.00% 95% A + BBldr Slabs, Boulder, Cobble, Bedrock TOTAL NUMBER OF SUBSTRATE TYPES: 5 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Pool Depth evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): Max = 30> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts] > 22.5 - 30 cm [30 pts] < 5 cm [5 pts] > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts] 25 12 COMMENTS **MAXIMUM POOL DEPTH (centimeters):** BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Bankfull > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] Width Max=30> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] \leq 1.0 m (<=3' 3") [5 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] 2.40 COMMENTS AVERAGE BANKFULL WIDTH (meters): 20 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆ RIPARIAN WIDTH FLOODPLAIN QUALITY (Most Predominant per Bank) (Per Bank) R Wide >10m Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Moderate 5-10m Urban or Industrial Field Open Pasture, Row Crop Narrow <5m Residential, Park, New Field Fenced Pasture None Mining or Construction COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Moist Channel, isolated pools, no flow (Intermittent) Stream Flowing Dry channel, no water (Ephemeral) Subsurface flow with isolated pools (Interstitial) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0 1.5 25 0.5 >3 STREAM GRADIENT ESTIMATE Flat (0.5 ft/100 ft) Flat to Moderate Moderate (2 ft/100 ft) Moderate to Severe Severe (10 ft/100 ft)

	QHEI PERFO	RMED? - Y	∕es ✓ No QHEISco	re	(If Yes, Attach	Completed	QHEI Form)									
		AM DESIGNAT	ED USE(S)													
	WWH Name: Big Walnut Creek CWH Name: EWH Name: MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE W				Distance from	om Evaluated S	Stream									
						m Evaluated S										
LEW						Distance fro	m Evaluated S	tream _								
				THE ENTIRE V	VATERSHED A	REA. CLEA	ARLY MARK TH	IE SITE LOCATION								
USGS	Quadrangle Nam	ne: Lockbourn	e	NRC:	Soil Map Pag	je:	NRCS Soil Ma	p Stream Order								
Count	y: Franklin			Township / C	ity:Franklin	County Oh	io									
	MISCELLANEOUS															
Base F	Flow Conditions?	(Y/N): N	Date of last precipitati	ion:		Quantity:	0.00									
	graph Information			-				_								
		N		00/												
	ted Turbidity? (Y/N	N):	Canopy (% open): _	0%												
Were	samples collected	I for water chem	nistry? (Y/N): Y	(Note lab samp	le no. or id. and	d attach resi	ults) Lab Numb	er:								
		np (°C)	Dissolved Oxygen (mg	g/l)	pH (S.U.)	Cond	uctivity (µmhos	/cm)								
								, -								
Is the	sampling reach re	presentative of	the stream (Y/N)	☐ If not, please	explain:											
							•									
								<u> </u>								
Additio	Additional comments/description of pollution impacts:															
	BIOTIC EVA	LUATION														
Fish C Frogs		LUATION (If Yes, ID numb Voucheerved? (Y/N)	Record all observations. per. Include appropriate	Voucher collectifield data sheets	tions optional. Its from the Prima	NOTE: all vo ary Headwate Voucher?	ucher samples r er Habitat Asses (Y/N)	must be labeled v								
Fish C Frogs	BIOTIC EVA med? (Y/N): Observed? (Y/N) or Tadpoles Obse	LUATION (If Yes, ID numb Voucheerved? (Y/N)	Record all observations. per. Include appropriate pr? (Y/N) N Salama	Voucher collectifield data sheets	tions optional. Its from the Prima	NOTE: all vo ary Headwate Voucher?	ucher samples r er Habitat Asses (Y/N)	must be labeled v ssment Manual)								
Fish C Frogs	BIOTIC EVA med? (Y/N): Observed? (Y/N) or Tadpoles Obse	LUATION (If Yes, ID numb Voucheerved? (Y/N)	Record all observations. per. Include appropriate pr? (Y/N) N Salama	Voucher collectifield data sheets	tions optional. Its from the Prima	NOTE: all vo ary Headwate Voucher?	ucher samples r er Habitat Asses (Y/N)	must be labeled v ssment Manual)								
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Fish C Frogs Comm	BIOTIC EVA med? (Y/N): Observed? (Y/N) or Tadpoles Observents Regarding E	LUATION (If Yes, ID number of Yes) I Vouche erved? (Y/N) Notiology:	Record all observations. per. Include appropriate Pr? (Y/N) Voucher? (Y/N) RRATIVE DESCRI Ind other features of interpretations.	Voucher collectield data sheets anders Observe Aquatic Mac	tions optional. Its from the Prima Note of Not	NOTE: all vo ary Headwate Voucher? Observed?	ucher samples rer Habitat Asses (Y/N) N (Y/N) N vo is must be of	must be labeled sement Manual) oucher? (Y/N) completed): the stream's lo								
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Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3): SITE NAME/LOCATION Talbott Property West Portion - Lower Reach SITE NUMBER | 300-273 RIVER BASIN **05060001** DRAINAGE AREA (mi²) 0.64 LAT. 39.82720 LONG. -82.96510 RIVER CODE LENGTH OF STREAM REACH (ft) RIVER MILE DATE 11/05/20 **COMMENTS HHEI Point #2** SCORER C.Hall NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions STREAM CHANNEL **MODIFICATIONS:** SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes HHEI (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. Metric **PERCENT PERCENT Points** BLDR SLABS [16 pts] SILT [3 pt] 15% 0% BOULDER (>256 mm) [16 pts] LEAF PACK/WOODY DEBRIS [3 pts] 0% 0% **Substrate** 0% BEDROCK [16 pt] 0% FINE DETRITUS [3 pts] Max = 4040% 0% COBBLE (65-256 mm) [12 pts] CLAY or HARDPAN [0 pt] 15% 0% GRAVEL (2-64 mm) [9 pts] MUCK [0 pts] 10 35% 0% SAND (<2 mm) [6 pts] ARTIFICIAL [3 pts] Total of Percentages of (B) (A) Substrate Percentage 0.00% 100% A + BBldr Slabs, Boulder, Cobble, Bedrock SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: 4 Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Pool Depth evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): Max = 30> 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts] > 22.5 - 30 cm [30 pts] < 5 cm [5 pts] > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts] 25 15 COMMENTS **MAXIMUM POOL DEPTH (centimeters):** BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Bankfull > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] Width Max=30> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] \leq 1.0 m (<=3' 3") [5 pts] > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts] COMMENTS AVERAGE BANKFULL WIDTH (meters): 3.65 25 This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ☆NOTE: River Left (L) and Right (R) as looking downstream☆ RIPARIAN WIDTH FLOODPLAIN QUALITY (Most Predominant per Bank) (Per Bank) R Wide >10m Mature Forest, Wetland Conservation Tillage Immature Forest, Shrub or Old Moderate 5-10m Urban or Industrial Field Open Pasture, Row Crop Narrow <5m Residential, Park, New Field Fenced Pasture None Mining or Construction COMMENTS FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Moist Channel, isolated pools, no flow (Intermittent) Stream Flowing Dry channel, no water (Ephemeral) Subsurface flow with isolated pools (Interstitial) COMMENTS SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0 1.5 25 >3 0.5

Moderate to Severe

Severe (10 ft/100 ft)

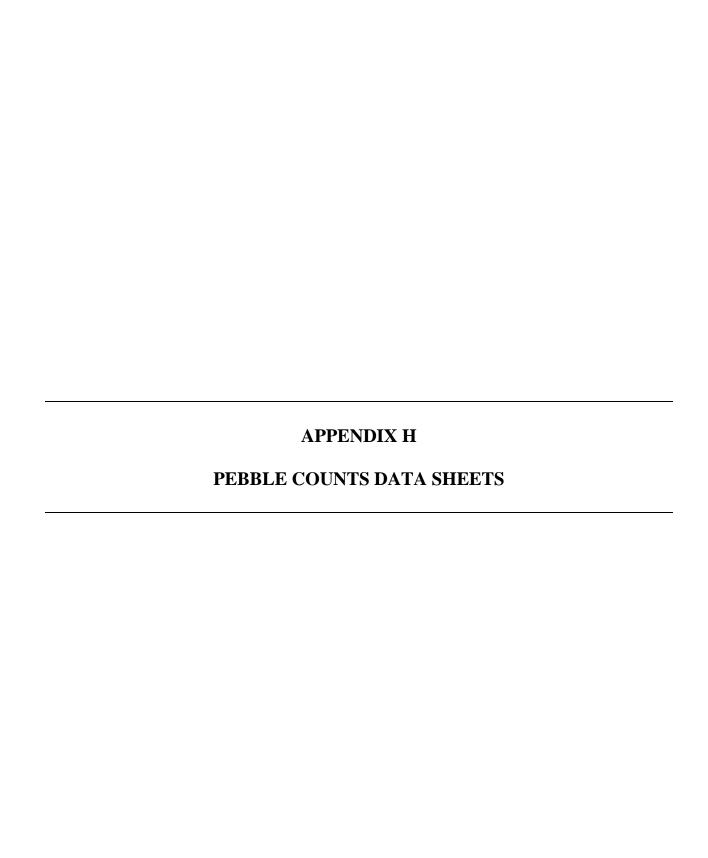
Moderate (2 ft/100 ft)

Flat (0.5 ft/100 ft)

STREAM GRADIENT ESTIMATE

Flat to Moderate

ADDITIONAL STREAM INFORMA	ATION (This Information Must Al	so be Completed):			
QHEI PERFORMED? -	Yes No QHEI Score	(If Yes, Atta	ich Completed QHEI Forr	m)	
DOWNSTREAM DESIG			1		
WWH Name: Big Walnut Cre	ek		Distance from Evaluated Stream		
CWH Name:EWH Name:			Distance from Evaluated Stream Distance from Evaluated Stream		
			-		
	PIES OF MAPS, INCLUDING THE				
USGS Quadrangle Name: Lockb	ourne		'age: NRCS Soil	I Map Stream Order	
County: Franklin	_ Tow	nship / City: Frankl i	in County Ohio		
MISCELLANEOUS	_				
Base Flow Conditions? (Y/N):_N	Date of last precipitation:		Quantity: 0.00		
Photograph Information:					
Elevated Turbidity? (Y/N): _ N	Canopy (% open):	9%			
Were samples collected for water	chemistry? (Y/N): Y (Note	lab sample no. or id. a	and attach results) Lab Nu	umber:	
Field Measures: Temp (°C)		pH (S.U.)	Conductivity (µm	hos/cm)	
Is the sampling reach representati	ve of the stream (Y/N)	ot, please explain:			
Additional comments/description of	of pollution impacts:				
radiional commonto/accomption c	r pondion impacte.				
BIOTIC EVALUATION					
, , ,	Yes, Record all observations. Vouc number. Include appropriate field d	•	•		
		Observed? (Y/N) N	Voucher? (Y/N)		
Frogs or Tadpoles Observed? (Y/I	N) N Voucher? (Y/N) N Aqu	uatic Macroinvertebrat	es Observed? (Y/N)	Voucher? (Y/N)	
Comments Regarding Biology:					
	NARRATIVE DESCRIPTIO			•	
Include important landmar	ks and other features of interest		id a narrative description	of the stream's location	
		Agricultural field			
}~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Duffer of shr	ubby/upland	**********	***************************************	
	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	*****	********	****	
FLOW	5' buffer of shrubby/			 }	
Jummun J	······································			·······	
	Access Roa	nd within property			



Pebble Count Data Sheet

Above Pipe

Size categories	Size ranges (mm)	Т	allies (counts)		Stations
Silt/clay	< 0.06				1
Very fine sand	0.06 – 0.125				
Fine sand	0.126 – 0.25	HT		5	2
Medium sand	0.26 – 0.5				
Coarse sand	0.5 – 1				3
Very coarse sand	1 - 2	1111		4	
Very fine gravel	2 - 4	441 444	yeartime		4
Fine gravel	5 - 8	HT 11		7	
Medium gravel	9 - 16	141		5	5
Coarse gravel	17 - 32	HT 111		8	
Very coarse gravel	33 - 64	HTHHH	41111	19	6
Small cobble	65 - 90	HT 4+11 1		13	
Medium cobble	91 - 128	IHH IHI		11	7
Large cobble	129 - 180	HH HH 1		11	
Very large cobble	181 - 255	HHI		6	
Small boulder	256 - 512				8
Medium boulder	513 - 1024				
Large boulder	1025 – 2048				9
Very large boulder	> 2048				
Bedrock	Large unbroken rock surface				10
Woody debris	Leaves, sticks etc.				Enter the tap
Indicate the method used below		nel features (Esti		positions	
% Habitat X Transects/St	ations	Riffles	Runs N / A	Pools N/A	

No H_2O , No Riff U IP_{OO} Development M_2O . This data sheet incorporates both basic and advanced pebble count classification. Basic categories include silt, sand, fine and coarse gravel, cobble, boulder and bedrock. Pebble counts can be part of SOS levels 1-3 and

should be performed at least once per year during low-water conditions. A version of the pebble count is included on all SOS biosurvey forms.

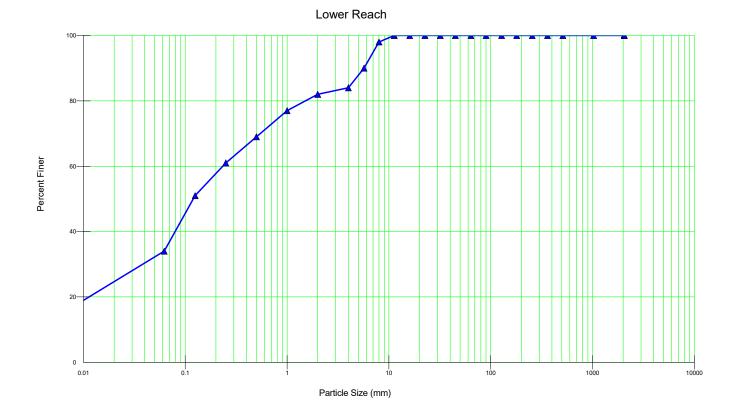
Pebble Count Data Sheet

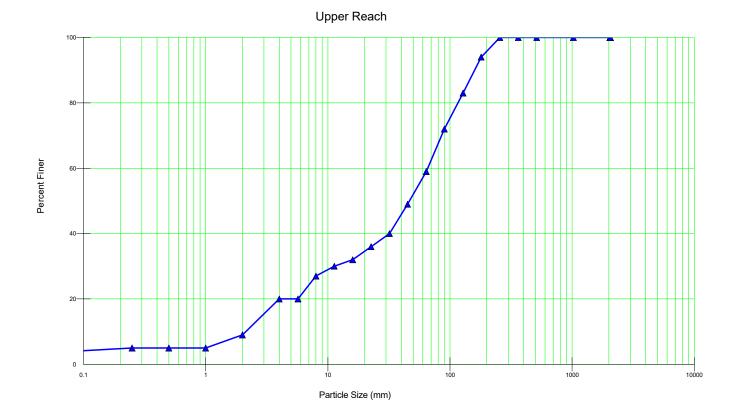
Below Pipe

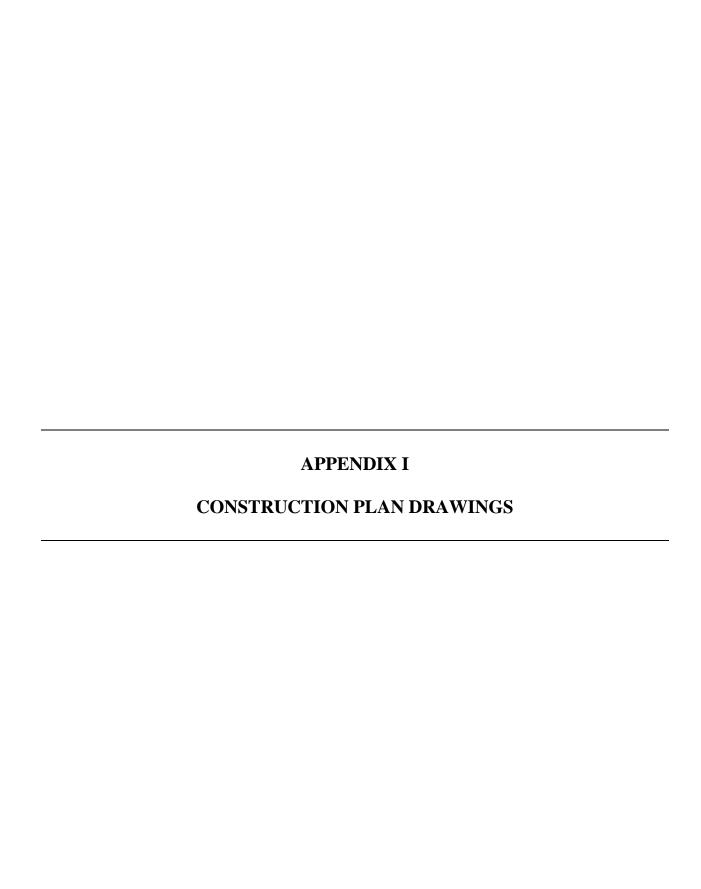
Size categories	Size ranges (mm)	Tallies (counts)		Stations
Silt/clay	< 0.06	IIII THE THE THE THE THE	34	1
Very fine sand	0.06 - 0.125	HT HT HT II	17	
Fine sand	0.126 - 0.25	HH H	10	2
Medium sand	0.26 – 0.5	HT 111	8	
Coarse sand	0.5 – 1	HT 111	8	3
Very coarse sand	1 - 2	HH	5	
Very fine gravel	2 - 4	11	2	4
Fine gravel	5 - 8	14+ 141 1111	14	
Medium gravel	9 - 16	11	2	5
Coarse gravel	17 - 32			
Very coarse gravel	33 - 64			6
Small cobble	65 - 90			
Medium cobble	91 - 128			7
Large cobble	129 - 180			1
Very large cobble	181 - 255			
Small boulder	256 - 512			8
Medium boulder	513 - 1024			
Large boulder	1025 – 2048			9
Very large boulder	> 2048			
Bedrock	Large unbroken rock surface			10
Woody debris	Leaves, sticks etc.			Enter the tap
Indicate the method used belo Zigzag % Habitat	ow Total count	% Channel features (Estimate Riffles Runs F) Pools	1 positions
Transects/S (Enter your t	tations ape position)		A/A	

* No H₂O, No Riff to / Pool Deve logoward Note: This data sheet incorporates both basic and advanced pebble count classification. Basic categories include silt, sand, fine and coarse gravel, cobble, boulder and bedrock. Pebble counts can be part of SOS levels 1-3 and

silt, sand, fine and coarse gravel, cobble, boulder and bedrock. Pebble counts can be part of SOS levels 1-3 and should be performed at least once per year during low-water conditions. A version of the pebble count is included on all SOS biosurvey forms.



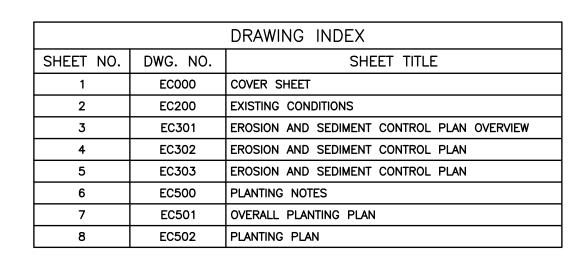




TALBOTT PROPERTY - WESTERN PORTION STREAM RELOCATION

STATE OF OHIO, FRANKLIN COUNTY, **TOWNSHIP OF HAMILTON, SECTION 2, TOWNSHIP 3N, RANGE 22W**

2021



STANDARD CONSTR	RUCTION DRAWINGS				
CITY OF COLUMBUS					
AA-S153	AA-S134B				



IMAGE TAKEN BY SEB, 09/24/2020



LOWER PORTION OF EXISTING STREAM

IMAGE TAKEN BY SEB, 09/24/2020.

PROJECT CONTACTS

PREPARED FOR

EXXCEL PROJECT MANAGEMENT, LLC.

328 S. CIVIC CENTER DRIVE COLUMBUS, OH 43215 PHONE: (614) 621-4500 CONTACT: JEFF WIATER EMAIL: JWIATER@EXXCEL.COM

PROJECT MANAGER

CIVIL & ENVIRONMENTAL CONSULTANTS, INC. 250 OLD WILSON BRIDGE ROAD, SUITE 250 WORTHINGTON, OH 43085 PHONE: (614) 540-6633 **CONTACT: JONATHAN DEMAREST** EMAIL: JDEMAREST@CECINC.COM



IMAGE TAKEN FROM OGRIP. ACCESSED 03/15/2021.

MITIGATION TABLE								
	PROJECT LENGTH							
REACH	REACH EXISTING (LF) PROPOSED TOTAL (LF) IMPACTED TOTAL (LF)							
STREAM RELOCATION 2,655 2,940 2,940								
TOTAL								

VOLUME TABLE							
DESCRIPTION	CUT (CY)	FILL (CY)	NET (CY)				
CUT/FILL VOLUME	11,476	8,305	3,171				
TOPSOIL (1' DEPTH)	11,233	0	11,233				
TOTAL	22.709	8.305	14.404				

THE PLANS HAVE BEEN CREATED ON ANSI D FULL BLEED (22" X 34") PAPER. FOR REDUCTIONS, REFER TO GRAPHIC SCALE. WHEN PLOTTED ON 11" X 17" PAPER, THIS PLAN SET WILL NOT BE TO SCALE.

THE PLANS HAVE BEEN CREATED FOR FULL COLOR PLOTTING. ANY SET OF THE PLANS THAT IS NOT PLOTTED IN FULL COLOR SHALL NOT BE CONSIDERED ADEQUATE FOR CONSTRUCTION PURPOSES.

REFERENCE

PARCEL BOUNDARIES ARE BASED ON TAX PARCEL INFORMATION FROM FRANKLIN COUNTY, OH ON FILE WITH CIVIL AND ENVIRONMENTAL CONSULTANTS, INC. (CEC), ACCESSED 06/18/2020.

- 2. TOPOGRAPHIC INFORMATION IS BASED ON A COMBINATION OF PUBLICLY AVAILABLE DATA FROM OHIO GEOGRAPHICALLY REFERENCED INFORMATION PROGRAM (OGRIP), ACCESSED 06/18/2020, AND DATA PROVIDED BY CLIENT, DATED 11/30/2020.
- AERIAL IMAGERY PROVIDED BY OHIO GEOGRAPHICALLY REFERENCED INFORMATION PROGRAM (OGRIP), ACCESSED 03/15/2021. IMAGERY

OHIO UTILITIES PROTECTION SERVICE 1-800-362-2764 Ohio State Law (ORC Section 3781.28) Requires that you call two business days before you dig in the State of Ohio

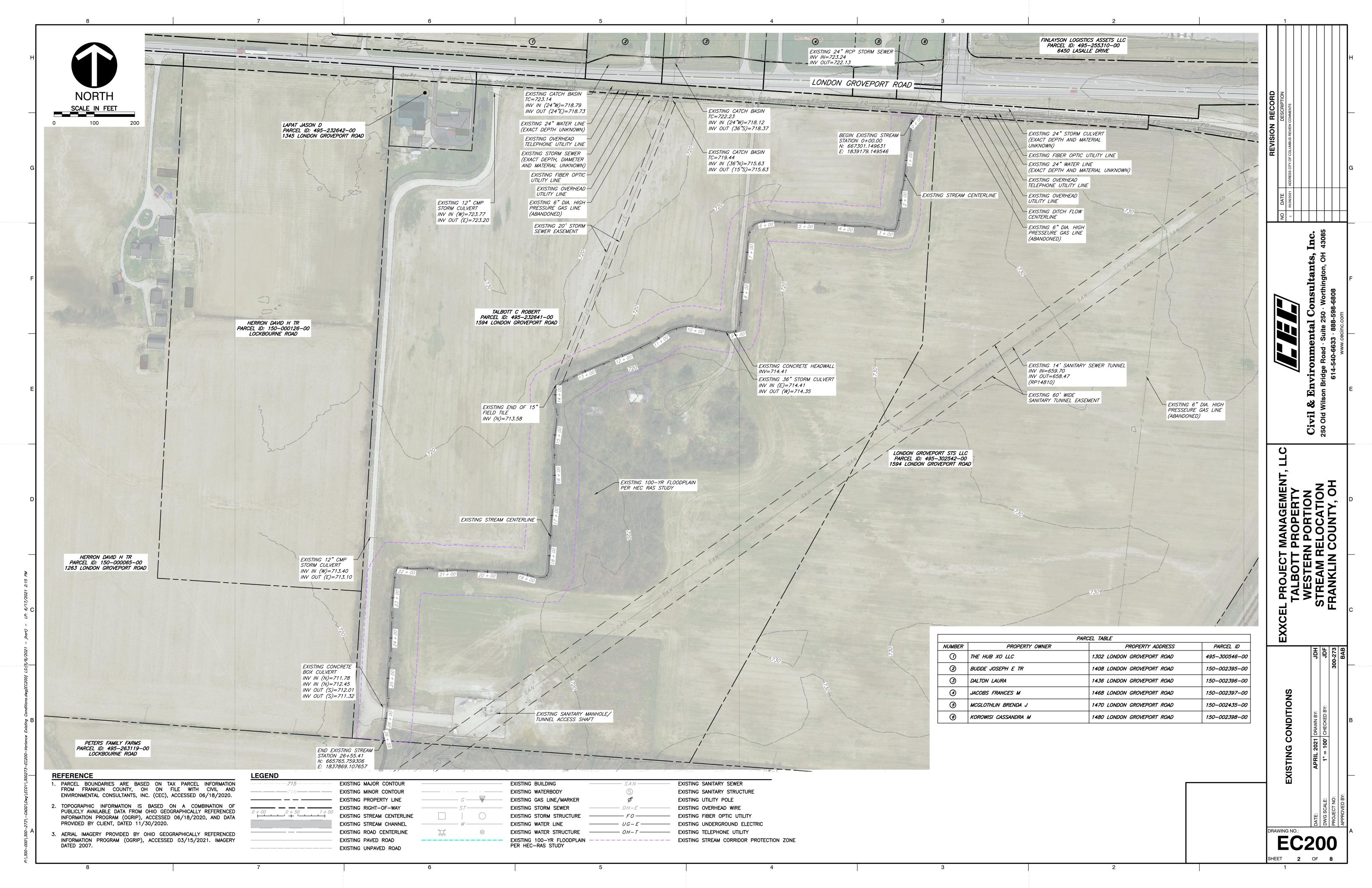
IT'S THE LAW!

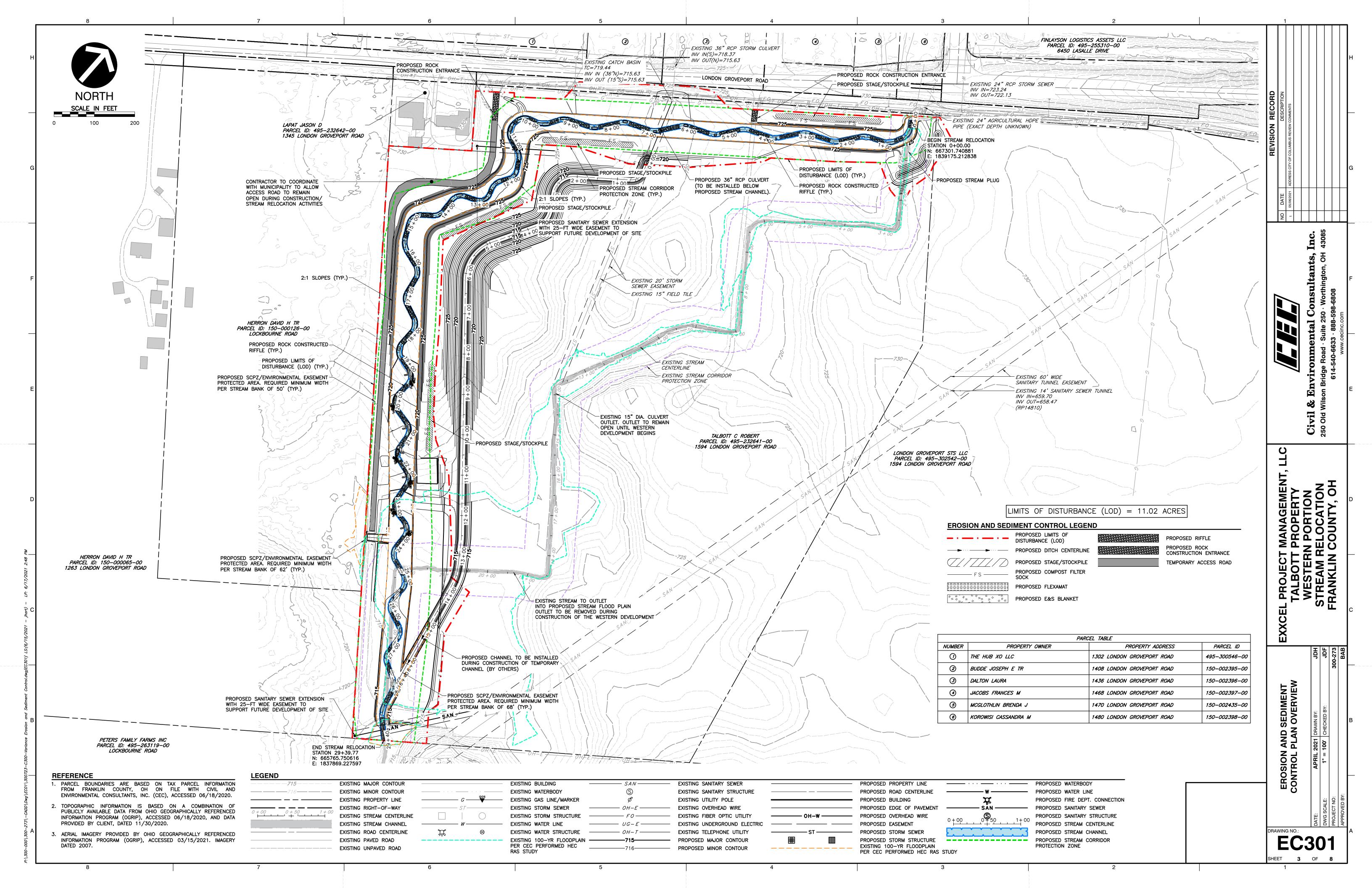


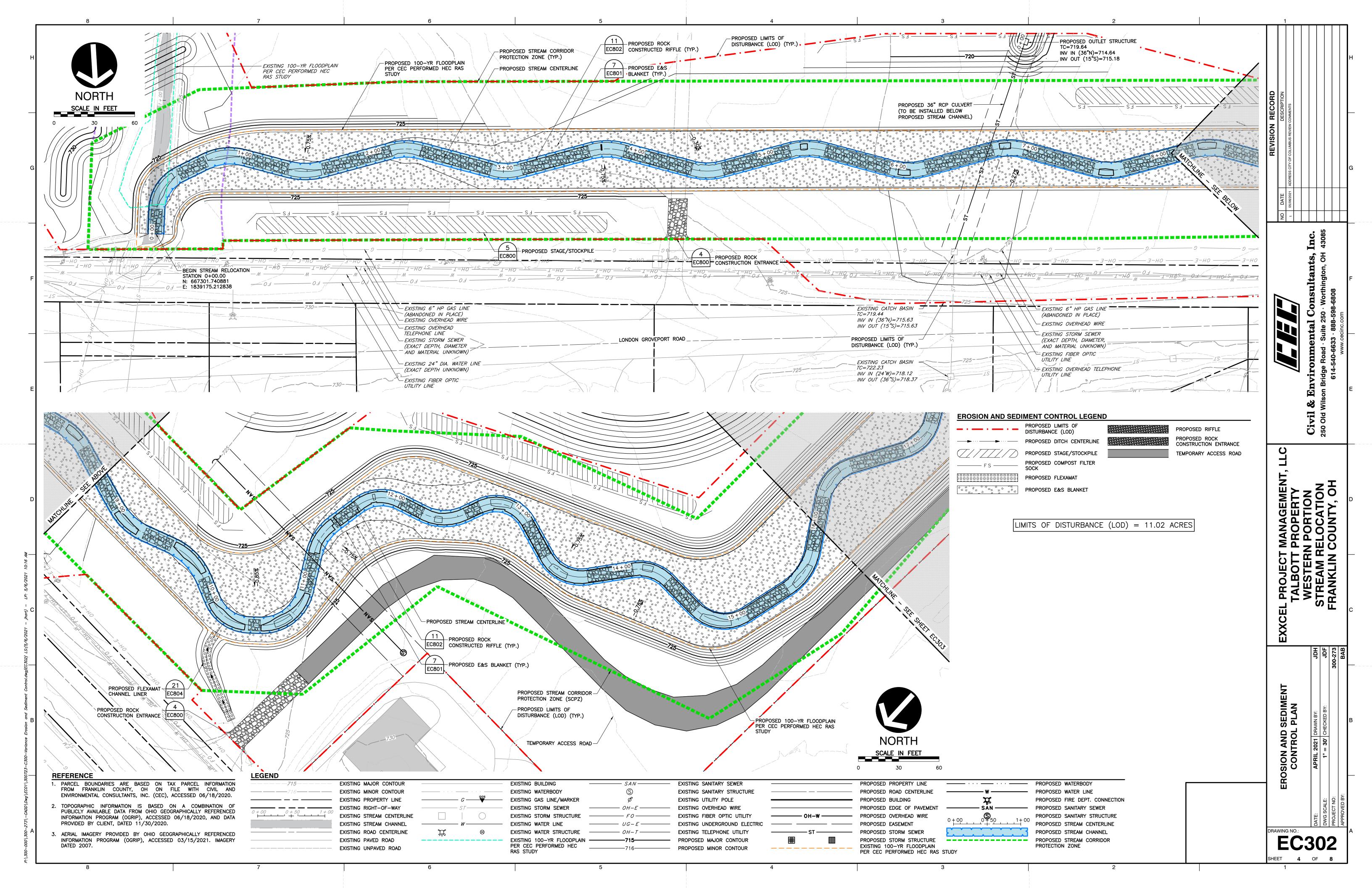


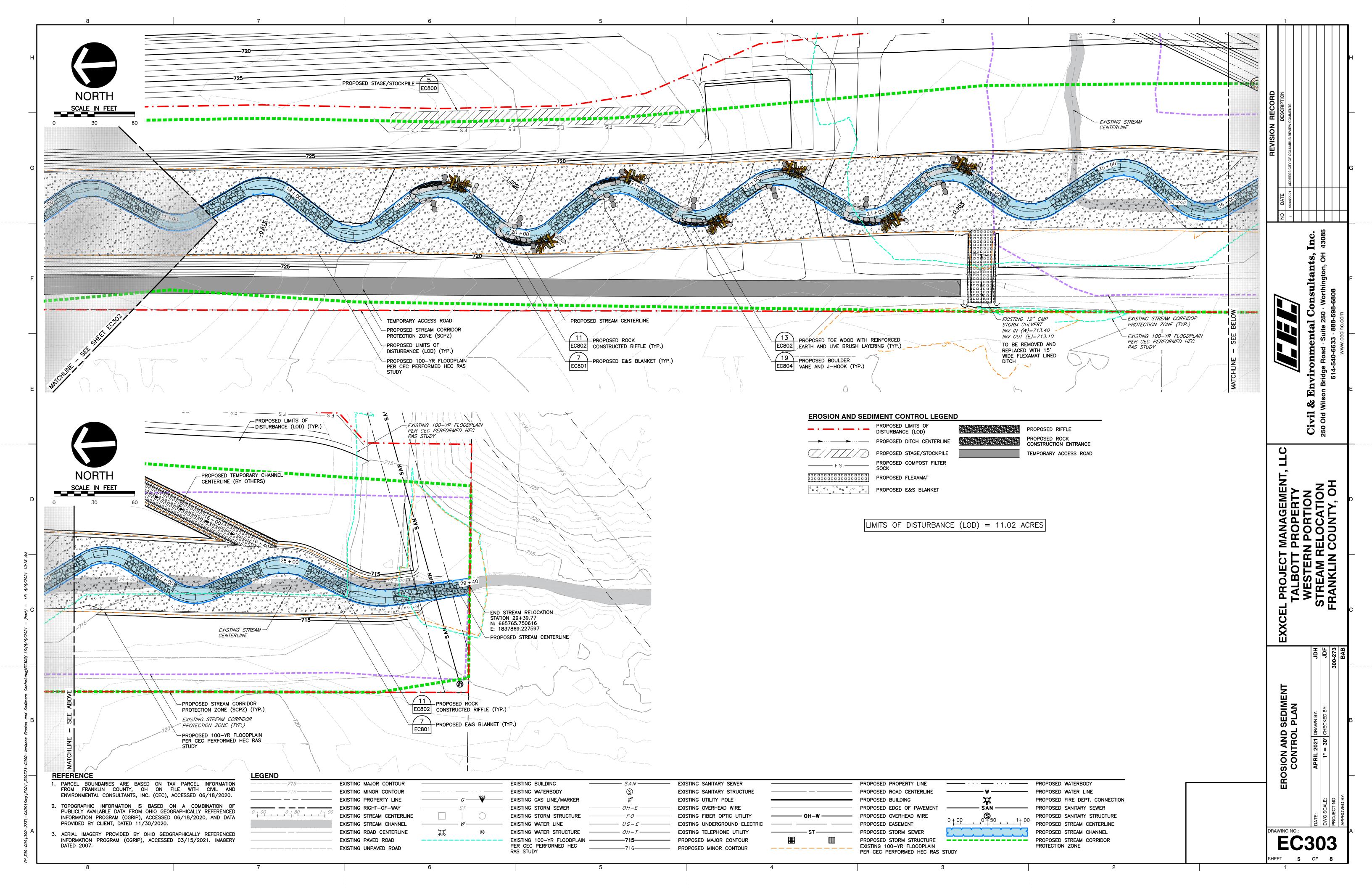
USGS 8-DIGIT HUC BOUNDARY MAP

UPPER SCIOTO HUC ID: 05060001 **NOT TO SCALE**









PLANTING NOTES

GENERAL

- 1.1. THE PLANTING SHOULD BE COMPLETED ACCORDING TO THE PLAN AND SPECIFICATIONS THAT HAVE BEEN PREPARED IN THIS CONSTRUCTION PACKAGE. ALL SPECIFICATIONS CAN BE MODIFIED AND/OR ADJUSTED DEPENDING ON THE SITE—SPECIFIC CONDITIONS AND/OR PLANT AVAILABILITY UPON ARRIVAL FROM CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
- 1.2. PLANTS MAY REQUIRE ADDITIONAL CARE IMMEDIATELY FOLLOWING THROUGHOUT ONE GROWING SEASON (MID-APRIL TO LATE OCTOBER). STANDARD HORTICULTURE PRACTICES SUCH AS WATERING, MULCHING, AND FERTILIZER SHOULD BE COMPLETED DURING THIS TIME, AS NECESSARY.
- 1.3. SIMILAR SUBSTITUTE PLAN SPECIES CAN BE USED IF THE SPECIFIED SPECIES ARE NOT AVAILABLE. SUBSTITUTE SPECIES MUST BE APPROVED BY THE PROJECT ENGINEER.

2. QUALITY

- 2.1. THE SUPPLIER OF ALL SEEDS AND/OR VEGETATION SHALL CERTIFY THAT ORIGIN OF THE SEEDS FROM WHICH THE PLANTS OR SEEDS WERE PRODUCED IS FROM HARDINESS ZONES 5, 6, OR 7, FROM THE EASTERN OR CENTRAL PORTIONS OF THE U.S., PRIOR TO PLANTING.
- 2.2. ENGAGE AN EXPERIENCED CONTRACTOR/INSTALLER, WHO HAS SUCCESSFULLY COMPLETED PLANTING PROJECTS SIMILAR IN SIZE AND COMPLEXITY TO THIS PROJECT
- 2.3. INSTALLER TO MAINTAIN AN EXPERIENCED FULL—TIME SUPERVISOR ON THE PROJECT SITE WHEN PLANTING IS IN PROGRESS.
- 2.4. STOCK FURNISHED SHALL BE AT LEAST THE MINIMUM SIZE INDICATED. LARGER STOCK IS ACCEPTABLE AS LONG AS QUALITY AND VARIETY IS MAINTAINED AND DOES NOT PRESENT PROBLEMS WITH THE INSTALLATION PROCESS.
- 3. PRODUCT HANDLING, STORAGE, AND DELIVERY
- 3.1. HANDLE PLANTING STOCK BY ROOT BALL
- 3.1.1. HANDLE ALL PLANT STOCK SO THAT THE ROOTS OR ROOT-BALLS ARE ADEQUATELY PROTECTED FROM BREAKAGE, DIRECT SUN, WARM AIR, AND DRYING WINDS. CONTAINERIZED STOCK SHOULD BE WATERED FREQUENTLY TO KEEP SOIL MOIST. PLANTS WITH DRIED OUT TOPS OR ROOTS SHALL BE REJECTED.
- 3.2. ALL PLANT MATERIAL SHALL BE TRANSPORTED AND STORED IN SUCH A WAY TO PREVENT ANY PHYSICAL DAMAGE.
- 3.2.1. PROTECT BARK, BRANCHES, AND ROOT SYSTEMS FROM SUN SCALD, DRYING, SWEATING, WHIPPING, STRONG WINDS, AND OTHER HANDLING AND TYING DAMAGE.
- 3.2.2. IF PLANTING IS DELAYED MORE THAN 6 HOURS AFTER DELIVERY, SET PLANT MATERIALS IN SHADE, PROTECT FROM WEATHER AND MECHANICAL DAMAGE, AND KEEP ROOTS MOIST AND FREE FROM FROST.
- 3.3. DO NOT BEND OR BIND—TIE TREES OR SHRUBS IN SUCH A MANNER AS TO DESTROY THEIR NATURAL SHAPE. PROVIDE PROTECTIVE COVERING OF PLANTS DURING DELIVERY. DO NOT DROP PLANTS DURING DELIVERY.
- 3.4. PRUNE ROOT STOCK AS NECESSARY BEFORE INSTALLATION.
- 3.5. MATERIAL SHALL BE PLANTED ACCORDING TO THE DETAILS PROVIDED ON SHEETS EC800 THROUGH EC804. THE USE OF A PUNCH/PLANTING BAR, AUGER, REBAR, OR WATER-JET MAY BE USED TO PREDRILL HOLE IF NECESSARY. TAMP SOIL AROUND STAKE FOLLOWING INSTALLATION.
- 3.6. PLANTING OF BARE ROOT TREE AND SHRUB SEEDLINGS (TUBELINGS) IS PERMITTED BETWEEN THE DATES OF NOVEMBER 1ST AND DECEMBER 15TH, ABND FEBRUARY 15TH TO APRIL 15TH. THESE DATES FOR PLANTING MAY NOT BE MODIFIED UNLESS APPROVED IN ADVANCE BY CEC. THE SURVIVAL OF SPECIMENS PLANTED OUTSIDE OF THESE DATES WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- 3.7. ALL BARE ROOT PLANTS SHALL BE SET STRAIGHT OR PLUMB FOR AN UPRIGHT GROWTH PATTER. SET CONTAINERIZED PLANT MATERIALS PLUMB AND CENTERED WITHIN HOLE, ENSURING THAT THE TOP OF THE ROOT BALL IS ELEVATED 2 TO 3 INCHES ABOVE THE SURROUNDING SOIL ELEVATIONS. THE PLANTING HOLES SHALL BE BACKFILLED WITH THE SAME SOIL THAT WAS EXCAVATED FROM THE HOLE AFTER REMOVING ALL STONES, ROOTS, AND OTHER DEBRIS GREATER THAN 2 INCHES IN DIAMETER. AFTER BACKFILLING THE HOLE, ALL PLANTED SPECIES SHOULD BE WATERED TO THE POINT OF SOIL SATURATION IF NOT PLANTED IN AN EXISTING WET CONDITION.
- 3.7.1. EXAMINE THE ROOTS IN ENSURE THEY ARE NOT POT BOUND, AND CAREFULLY SEPARATE ANY CRAMPED ROOTS AND SPREAD THEM OUT WHEN PLACING THE PLANT IN THE HOLE SO THAT THE ROOTS CAN GROW WITHOUT FURTHER CONSTRICTION OF THE ROOT BALL.
- 3.7.2. RAKE THE UNUSED EXISTING SOIL OUTSIDE THE PLANTING HOUSE, TAKING CARE NOT TO MOUND THE SOIL OR SIGNIFICANTLY ALTER THE EXISTING GRADES.
- 3.8. COMMERCIALLY SUPPLIED OR FIELD HARVESTED LIVE STAKES SHALL BE AT LEAST ONE YEAR OLD, AND SHALL BE HARVESTED AND TRANSPORTED WHEN PLANTS ARE DORMANT (NOV. 1 MARCH 1).
- 3.8.1. THE SIZE OF STAKES SHALL RANGE FROM 1/2 INCH TO 1 INCH IN CALIPER AND AVERAGE 24 INCHES IN LENGTH WITH A MINIMUM PLANTED LENGTH OF 24 INCHES. SIDE BRANCHES SHALL BE REMOVED WITH THE REMAINING BARK INTACT. THE BOTTOM (BASAL) END SHALL BE CLEANLY CUT AT A 45 DEGREE OR SHARPER ANGLE AND THE TOP END SHOULD BE CUT SQUARE (FLAT), PROTRUDING NO MORE THAN SIX INCHES.

4. SITE PREPARATION

- 4.1. EXAMINE THE SUBGRADE AND TOPSOIL, VERIFY THE ELEVATIONS, AND OBSERVE THE CONDITIONS UNDER WHICH WORK IS TO BE PERFORMED.
- 4.2. COMPACTED SOIL SHALL BE RAKED, DISKED, OR AMENDED AS NECESSARY TO FACILITATE WATER INFILTRATION AND ROOT GROWTH.
- 4.3. ALL SOIL AMENDMENTS AND CONDITIONING SHALL BE COMPLETED PRIOR TO SEEDING AND PLANT MATERIAL INSTALLATION. DO NOT PROCEED WITH INSTALLATION UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED IN A MANNER ACCEPTABLE TO THE ENGINEER.

PLANTING NOTES (CONTINUED)

- 4.4. SOIL MEDIUM FOR PLANTING SHALL BE FREE OF ANY ROCK FRAGMENTS LARGER THAN TWO INCHES IN SIZE, OR LARGE WOODY DEBRIS FRAGMENTS, AND BE COMPRISED PREDOMINANTLY OF LOAM TO SILTY CLAY LOAM SOILS.
- 4.5. PLANTS SHALL BE INSTALLED IN UNFROZEN SOIL CONDITIONS (OCTOBER 1 THROUGH DECEMBER 15 OR MARCH 1 THROUGH MAY 31) AND OUTSIDE OF POTENTIAL FROST. PLANT INSTALLATION OUTSIDE OF THIS TIME PERIOD SHALL NOT OCCUR UNLESS APPROVED BY THE PROJECT ENGINEER AND MAY REQUIRE ADDITIONS TO THE SCOPE OF WORK, SUCH AS WATERING REGIMES, MULCHING, OR ADDITIONAL PLANT QUANTITIES.

5. SEEDING

- 5.1. THE OPTIMAL TIME TO INSTALL SEED IS FROM THE FALL (SEPTEMBER 1) TO LATE SPRING (MAY 31). TREAT WEEDS OR OTHER UNWANTED VEGETATION AS NEEDED PRIOR TO SEEDING AND PLANTING.
- 5.2. DO NOT USE WET SEED, SEED THAT IS MOLDY, OR OTHERWISE DAMAGED IN TRANSIT OR STORAGE. SEED SHOULD BE CLEAN AND DRY.
- 5.3. RAKE SEED LIGHTLY INTO THE TOP 1/4 TO 1/2 INCH OF TOPSOIL, ROLL LIGHTLY, AND WATER WITH A FINE SPRAY.
- 5.4. PROTECT SEEDED AREAS AGAINST EROSION BY SPREADING STRAW MULCH IMMEDIATELY FOLLOWING COMPLETION OF SEEDING OPERATIONS IF OTHER EROSION CONTROL MEASURES ARE NOT OTHERWISE SPECIFIED.

6. HERBICIDE APPLICATION

6.1. EXISTING AREAS WITH SUBSTANTIAL COVERAGE OF INVASIVE SPECIES SHALL BE SPRAYED WITH GLYPHOSATE (ROUDNUP® OR APPROVED EQUAL), SURFACTANT, AND AMMONIUM SULFATE MIX AT A RATE OF 1 QUART GLYPHOSATE PER ACRE, 7 OUNCES OF SURFACTANT, AND 17 POUNDS PER 100 GALLONS OF WATER OR AMMONIUM SULFATE. COOL SEASON GRASS ERADICATION REQUIRES ONE APPLICATION IN THE FALL AND ON IN THE SPRING. GRASS SHOULD BE ALLOWED TO GROW 6 INCHES, EITHER AFTER MOWING OR FROM SPRING GROWTH, TO WEAKEN THE PLANT AND PROVIDE MAXIMUM SURFACE AREA FOR APPLICATION.

TABLE 1: SEED MIX FOR FLOODPLAIN BENCH OF RESTORATION AREAS.			ACRES		
			3.0		
SCIENTIFIC NAME	COMMON NAME	INDICATOR STATUS*	DENSITY	LBS PER ACRE	QUANTITY (LBS/ACRE)
Dichanthelium clandestinum	Deertongue	FACW	20.6%	4.12	12.36
Elymus riparius	Riverbank Wildrye	FACW	20.0%	4	12
Andropogon gerardii	Big Bluestem	FAC	10.0%	2	6
Carex lurida	Lurid Sedge	OBL	10.0%	2	6
Carex vulpenoidea	Fox Sedge	FACW	10.0%	2	6
Carex scopara	Blunt Broom Sedge	OBL	8.0%	1.6	4.8
Panicum virgatum	Switchgrass	FAC	7.2%	1.44	4.32
Juncus effusus	Soft Rush	OBL	3.0%	0.6	1.8
Heliopsis helianthoides	Oxeye Sunflower	FACU	2.0%	0.4	1.2
Verbena hastata	Swamp Vervain	FACW	2.0%	0.4	1.2
Asclepias incarnata	Swamp Milkweed	OBL	1.0%	0.2	0.6
Symphyotrichum puniceum	Purplestem Aster	OBL	1.0%	0.2	0.6
Desmodium paniculatum	Panicledleaf Ticktrefoil	FACU	1.0%	0.2	0.6
Eupatorium perfoliatum	Boneset	OBL	1.0%	0.2	0.6
Symphyotrichum novae-angliae	New England Aster	FACW	0.5%	0.1	0.3
Soellingeria umbellata	Flat Topped White Aster	FACW	0.5%	0.1	0.3
Eutrochium purpureum	Joe Pye Weed	FAC	0.5%	0.1	0.3
Monarda fistulosa	Wild Bergamot	FACU	0.5%	0.1	0.3
Vernonia noveboracensis	New York Ironweed	FACW	0.5%	0.1	0.3
Zizia aurea	Golden Alexanders	FAC	0.5%	0.1	0.3
Mimulus ringens	Square Stem Monkeyflower	OBL	0.1%	0.02	0.06
Pycnanthemum tenuifolium	Narrowleaf Mountainmint	FAC	0.1%	0.02	0.06
	•	•	100.0%	20	60.0

* Wetland indicator status based on Midwest USDA and USACE subregion.

- Seed mixed based on ERNST Seed mix for floodplains (ERMX-154)

- Substitutions may be made based upon availability and coordination with engineer.

- Flood plain bench area (2.25 acres) rounded up to nearest whole number for the purposes of purchasing seed.

TABLE 2: SEED MIX FOR SIDESLOPE (UPLAND) BETWEEN FLOODPLAIN BENCH AND FARMLAND IN RESTORATION				ACRES	
	AREA	AS.			6.0
SCIENTIFIC NAME	COMMON NAME	INDICATOR STATUS*	DENSITY	LBS PER ACRE	QUANTITY (LBS/ACRE)
Andropogon gerardii	Big Bluestem	FAC	34.9%	7	41.88
Panicum Virgatum	Switchgrass	FAC	27.0%	5	32.4
Elymus virginicus	Virginia Wildrye	FACW	21.0%	4	25.2
Sorghastrum nutans	Indiangrass	FACU	9.0%	2	10.8
Rudbeckia hirta	Blackeyed Susan	FACU	3.0%	1	3.6
Chamaecrista fasciculata	Partridge Pea	FACU	2.0%	0	2.4
Heliopsis helianthoides	Oxeye Sunflower	FACU	1.5%	0	1.8
Coreopsis tinctoria	Plains Coreopsis	FACU	1.0%	0	1.2
Desmodium canadense	Showy Ticktrefoil	FACU	0.4%	0	0.48
Asclepias syriaca	Common Milkweed	FACU	0.1%	0	0.12
Monarda fistulosa	Wild Bergamot	FACU	0.1%	0	0.12
	•	1	100.0%	20	120

* Wetland indicator status based on Midwest USDA and USACE subregion.

- Seed mixed based on ERNST Seed mix for Native Upland Wildlife Forage & Cover Meadow Mix (ERMX-123).

- Substitutions may be made based upon availability and coordination with engineer

TABLE 3: LIVE STAKE I	PLANTING FOR STREAM	I BANK BELOW BAN	KFULL.
SCIENTIFIC NAME	COMMON NAME	INDICATOR	QUANTITY
Cephalanthus occidentalis	Buttonbush	OBL	420
Cornus amomum	Silky Dogwood	FACW	420
Ilex verticillata	Winterberry	FACW	380
Sambucus canadensis	Elderberry	FAC	400
Salix nigra	Black Willow	FAC	380
	•	TOTAL:	2000

- Substitutions may be made based upon availability and coordination with engineer.

- Three foot spacing on center for one row on both sides of stream channel below bankfull bench.

TABLE 4: WOO	DY STEM PLANTING FOR FLOOI	OPLAIN BENCH AND SIDES	LOPE HABITAT WITHI	N MITIGATION AREA.

	SCIENTIFIC NAME	COMMON NAME	INDICATOR STATUS*	BARE ROOT OR TUBELING
	Acer saccharinum	Silver Maple	FACW	350
	Carpinus caroliniana	American Hornbeam	FAC	300
	Celtis occidentalis	Common Hackberry	FAC	300
CANOPY TREES	Platanus occidentalis	American Sycamore	FACW	350
CANOPI IREES	Populus deltoides	Eastern Cottonwood	FAC	300
	Quercus bicolor	Swamp White Oak	FACW	300
	Quercus palustris	Pin Oak	FACW	350
			TOTAL:	2250
SHRUBS	Alnus serrulata	Smooth alder	OBL	300
	Aronia melanocarpa	Black chokeberry	FAC	400
	Cephalanthus occidentalis	Buttonbush	OBL	400
	Cornus amomum	Silky dogwood	FACW	400
	Sambucus canadensis	Elderberry	FAC	400
	Viburnum prunifolium	Blackhaw	FACU	350
			TOTAL:	2250

* Wetland indicator status based on Northcentral and Northeast USDA and USACE subregion.

- Substitutions may be made based upon availability and coordination with engineer.

- No single species may comprise more than 15% of habitat. May substitute containerized plant stock at same density.

- Plating area approximately 7.4 acres which results in 4,070 total stems (500 stems per acre), rounded up to 4,500 stems.

onsultants, Inc.

Worthington, OH 43085

Civil & Environmental Consu

ALBOTT PROPERTY
VESTERN PORTION
FREAM RELOCATION
ANKLIN COUNTY, OH

DTES

BY: JDH

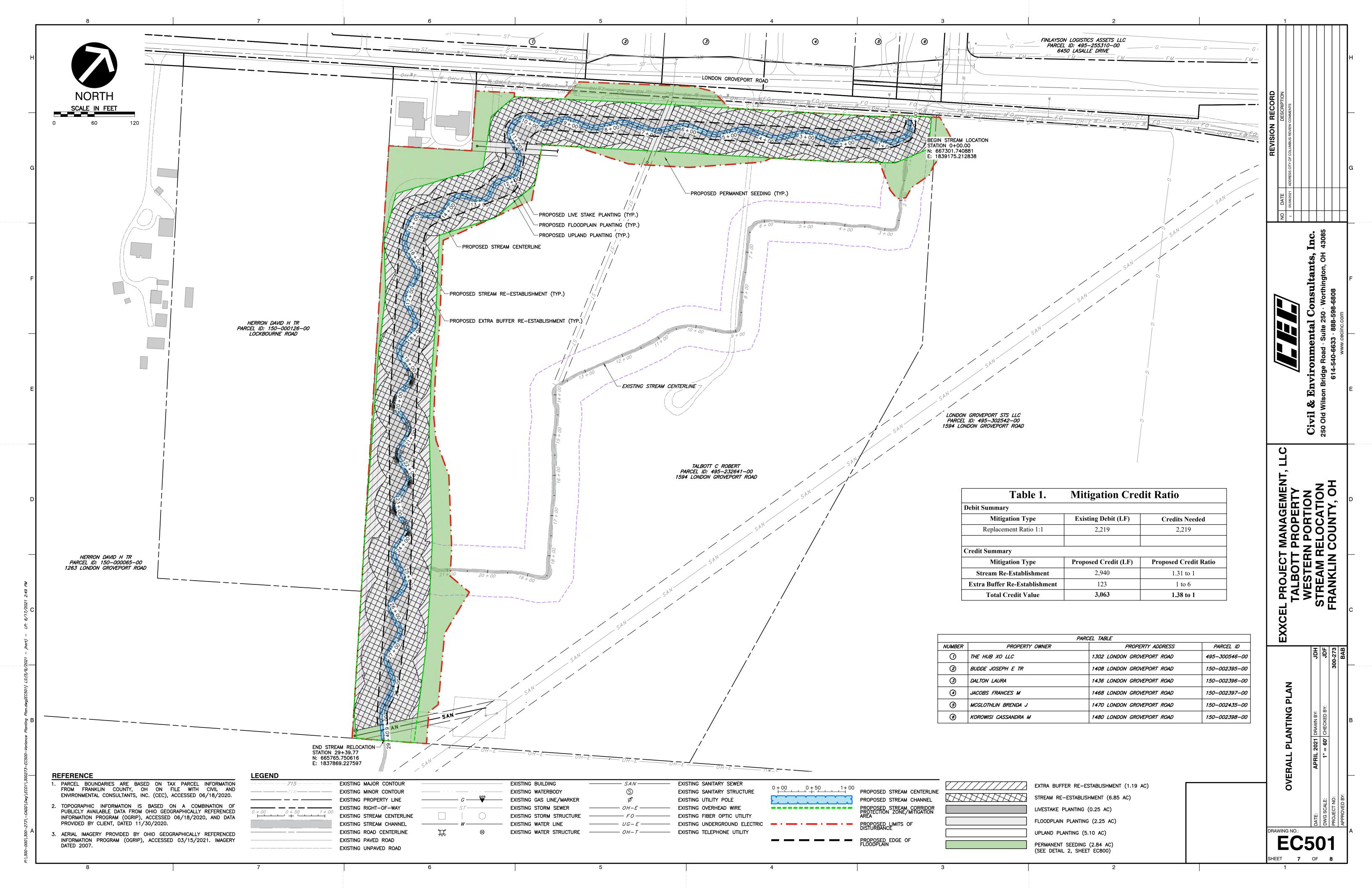
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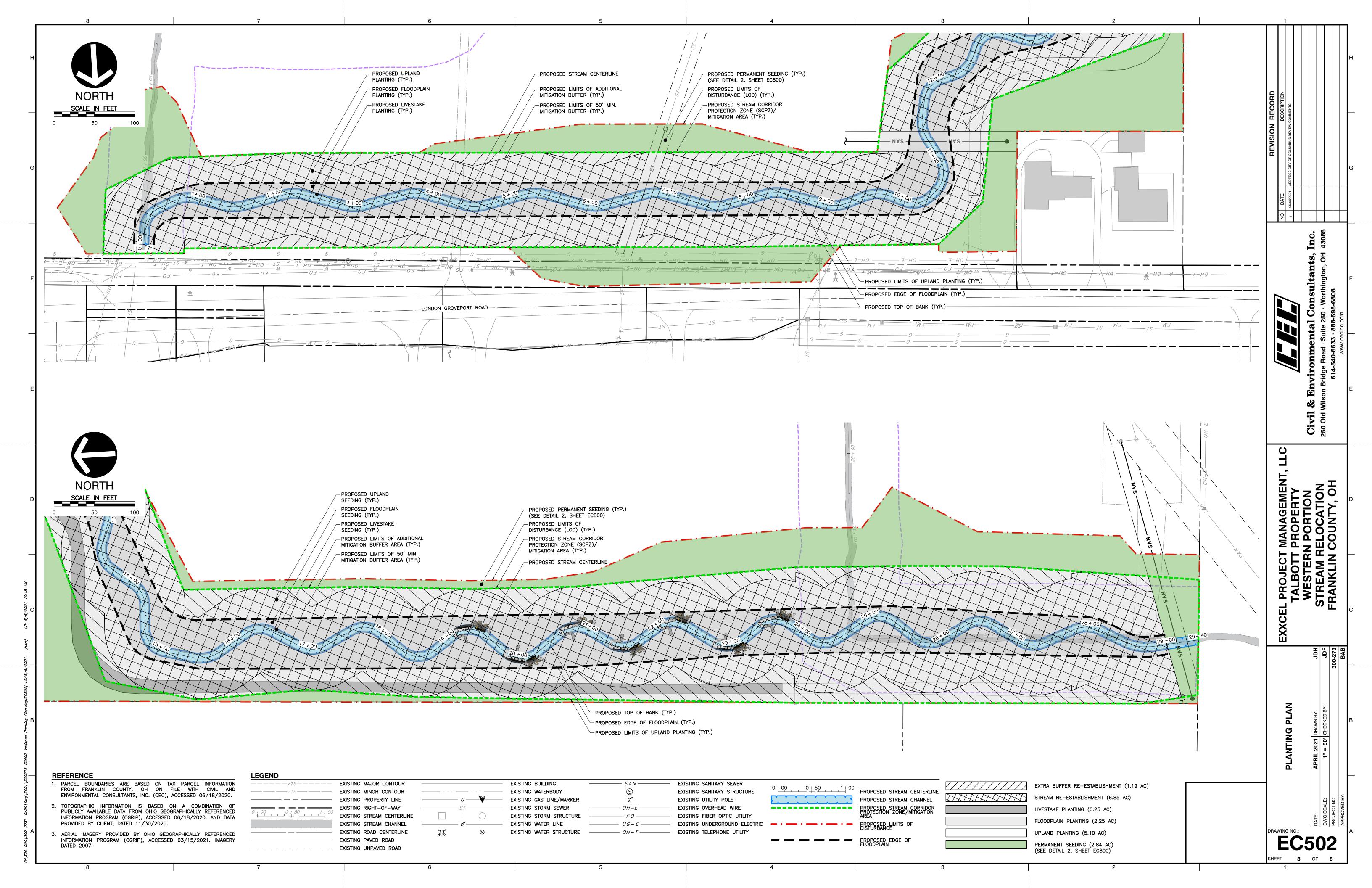
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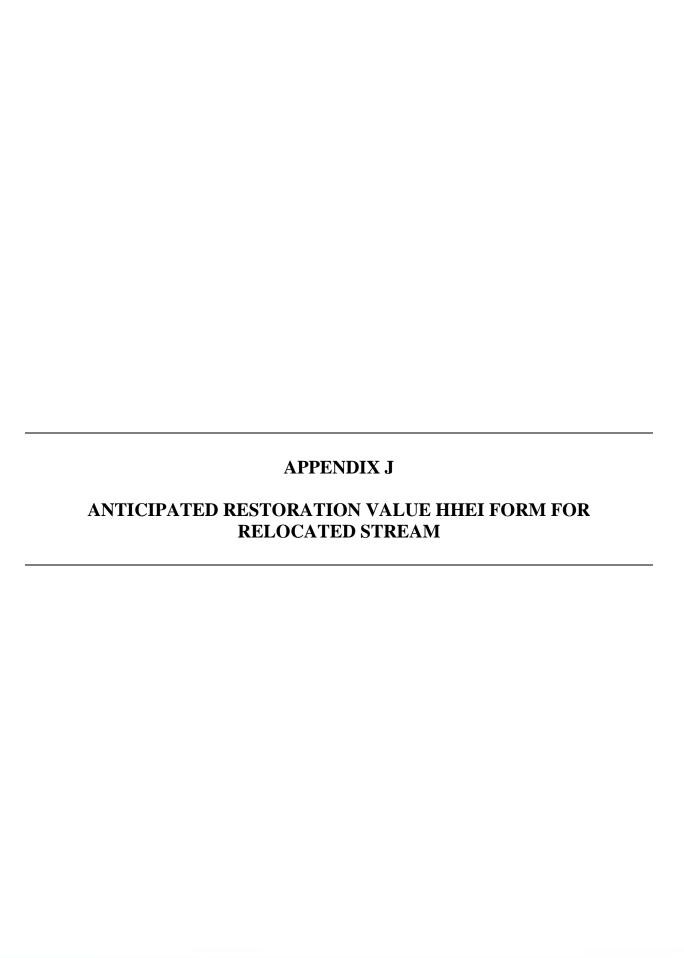
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EC500

SHEET 6 OF 8









ChieFP Primary Headwater Habitat Evaluation Form

HHEI Score (sum of metrics 1, 2, 3):

SITE NAME/LOCATION			
SITE NUMBER_			
LENGTH OF STREAM REACH (ft)			
DATE SCORER			
NOTE: Complete All Items On This For	m - Refer to "Field Evaluation I	Manual for Ohio's PHWH S	treams" for Instructions
STREAM CHANNEL	ATURAL CHANNEL	ED ☐ RECOVERING ☐ RE	ECENT OR NO RECOVERY
SUBSTRATE (Estimate percent of ev			
(Max of 32). Add total number of signifityPE	icant substrate types found (Max of 8) PERCENT TYPE	. Final metric score is sum of be	DXES A & B. HHEI Metric
BLDR SLABS [16 pts]	SILT [3 p		Points
		ACK/WOODY DEBRIS [3 pts] TRITUS [3 pts]	Substrate
		HARDPAN [0 pt]	Max = 40
☐ ☐ GRAVEL (2-64 mm) [9 pts]		pts]	
SAND (<2 mm) [6 pts]	ARTIFIC	IAL [3 pts]	
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock _	(A) Substrate P	ercentage	(B) A + B
SCORE OF TWO MOST PREDOMINATE SUB		TAL NUMBER OF SUBSTRATE	E TYPES:
2. Maximum Pool Depth (Measure the and evaluation. Avoid plunge pools from room to be a supplementation of the sup			at the time of Pool Dept Max = 30
> 30 centimeters [20 pts]	□ > 5 cm	- 10 cm [15 pts]	Wax = 50
> 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts]	☐ < 5 cm	[5 pts] TER OR MOIST CHANNEL [0	ntel
COMMENTS	N	IAXIMUM POOL DEPTH (cent	imeters):
3. BANK FULL WIDTH (Measured as the		•	
> 4.0 meters (> 13') [30 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]		- 1.5 m (> 3' 3" - 4' 8") [15 pts] (<=3' 3") [5 pts]	Width Max=30
> 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]			
COMMENTS	A	VERAGE BANKFULL WIDTH	(meters):
	This information must als	so be completed	
RIPARIAN ZONE AND FLOOD RIPARIAN WIDTH	PLAIN QUALITY ☆NOTE: River FLOODPLAIN QUALITY	Left (L) and Right (R) as lookir	ng downstream☆
L R (Per Bank)	L R (Most Predominant per	·	
☐ ☐ Wide >10m	Mature Forest, Wetland	har Old — —	nservation Tillage
☐ ☐ Moderate 5-10m	Field		oan or Industrial
□ □ Narrow <5m	Residential, Park, New	Field	en Pasture, Row Crop
□ □ None COMMENTS	☐ ☐ Fenced Pasture	☐ ☐ Mir	ing or Construction
Stream Flowing Subsurface flow with isolated po		Moist Channel, isolated pools, Dry channel, no water (Ephem	,
SINUOSITY (Number of bends	per 61 m (200 ft) of channel) (Check	(ONLY one box):	
None 0.5	1.0	.0 🔲 🤅	3.0 -3

ADDITIONAL STRE	AM INFORMATION (This Information Must Also be Completed):
QHEI PER	RFORMED? - Tyes No QHEI Score(If Yes, Attach Completed QHEI Form)
☐ WWH Name:	Distance from Evaluated Stream Distance from Evaluated Stream Distance from Evaluated Stream
MAPPING	3: ATTACH COPIES OF MAPS, INCLUDING THE <u>ENTIRE</u> WATERSHED AREA. CLEARLY MARK THE SITE LOCATION
USGS Quadrangle I	Name: NRCS Soil Map Page: NRCS Soil Map Stream Order
County:	Township / City:
MISCELL	ANEOUS
	ns? (Y/N): Date of last precipitation: Quantity:
	tion:
	(Y/N): Canopy (% open):
Were samples colle	cted for water chemistry? (Y/N): (Note lab sample no. or id. and attach results) Lab Number:
Field Measures:	Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Conductivity (µmhos/cm)
Is the sampling read	ch representative of the stream (Y/N) If not, please explain:
BIOTIC E Performed? (Y/N): _ Fish Observed? (Y/I	Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebrates Observed? (Y/N) Voucher? (Y/N)
DRAV	VING AND NARRATIVE DESCRIPTION OF STREAM REACH (This <u>must</u> be completed):
Include impo	rtant landmarks and other features of interest for site evaluation and a narrative description of the stream's location