CITY OF POWELL
ORDINANCE 2006-65
EXHIBIT B

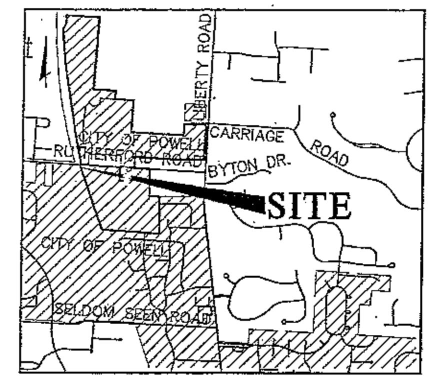
CITY OF POWELL, DELAWARE COUNTY, OHIO

Street And Storm Sewer Plan

FOR

RUTHERFORD ROAD UNDERPASS AT THE WOODS OF POWELL SOUTH

2005



LOCATION MAP
NOT TO SCALE

CULVERT GENERAL NOTES

The following specification sections, among others, including City of Powell and Delaware County regulations, shall be adhered to while constructing this project.

ODOT CMS 202	ODOT CMS 512	COLUMBUS
ODOT CMS 203	ODOT CMS 516	1441 Dr. A.
ODOT CMS 501	ODOT CMS 518	AA – S100
ODOT CMS 503	ODOT CMS 603	AA – S101
ODOT CMS 508	ODOT CMS 703	AA – S112
ODOT CMS 509	ODOT CMS 712	
ODOT CMS 511		

STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS

Reference shall be made to Standard Drawings:

GR 2.1	Dated 01–16–04
GR 2.4	Dated 04–18–03
GR 4.1	Dated 04–18–03
GR 4.2	Dated 10–17–03
CB 1.2	Dated 7–20–01

Reference shall be made to Supplemental Specification:
864 Dated 07–11–00

PROPOSED STRUCTURE

The proposed structure shall be a 12' span x 8' rise Precast Reinforced Concrete Four–sided Box Culvert with cast–in–place concrete footings, and precast headwalls and wingwalls.

DESIGN SPECIFICATIONS

This structure conforms to "Standard Specifications for Highway Bridges" adopted by the American Association of State Highway and Transportation Officials, 2002, and the ODOT Bridge Design Manual. Construction & Materials shall conform to the Construction & Material Specifications Manual from ODOT, 2002.

DESIGN LOADING

HS20–44 and the Alternate Military Loading.

DESIGN DATA

Concrete Class C– Compressive Strength 4000 p.s.i.

Reinforcing Steel – ASTM A615, A616 or A617. Grade 60 – minimum Yield Strength 60,000 p.s.i.

All Reinforcing to be Epoxy Coated.

The design of the Precast Reinforced Concrete Four–sided Box Sections shall be in accordance with the 2002 ODOT CMS (Construction and Materials Specifications) Item 706.05.

WINGWALLS

Cast–in–place wingwalls are shown.

Precast wingwall systems shall be utilized. The complete design, review, and detailing of the precast culvert sections and precast wingwall systems shall be the responsibility of the contractor and/ or the contractor's fabricator. This includes any cast–in–place foundation that may be required for precast wingwall systems. The contractor and/ or fabricator shall produce a letter of certification, verifying that the precast components meet the stated loading criteria. This certification shall be submitted to the City of Powell, Delaware County and EMH&T for their records.
The contractor shall verify subsurface conditions, including utility locations, prior to fabricating precast components. No additional payment will be made for adjustments to pipes, grades, utilities, or any other items resulting from the lack of subsurface condition verification.

UTILITY LINES

All expense involved in relocating (installing) the affected Utility Lines within the right–of–way shall be borne by the Utility(ies). The Contractor and Utility(ies) are to cooperate by arranging their work in such a manner that inconvenience to either will be held to a minimum.

INSTALLATION

The structure shall be installed in accordance with Item 603 except as modified herein. The Requirements of 603.04– Bedding, 603.06– Joining Conduit, and the minimum trench width requirements of 603.08 shall be followed except that the backfill material may not be compacted with water and shall be placed in 8" layers. The backfill material shall be brought up uniformly on both sides of the conduit. Manufacturer's representative shall be present during complete installation of the structure. A Geotech Engineer, employed by The Developer, shall also be present and approve placement and backfilling of conduit.

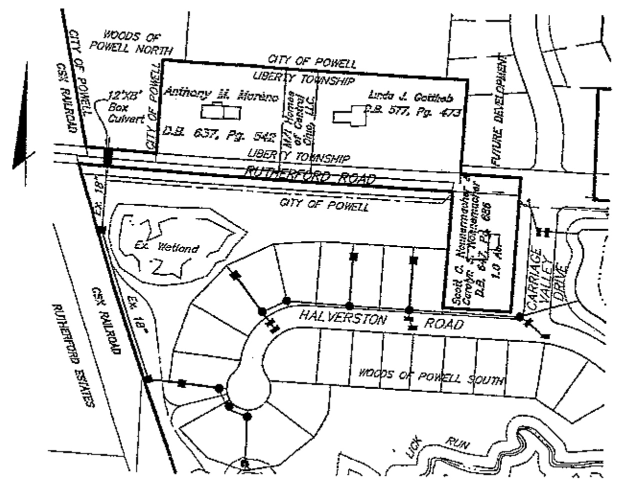
SHOP DRAWINGS

Reinforcing steel shop drawings for the cast–in–place footings shall be submitted to EMH&T, and the Delaware County Engineer to review the proposed reinforcing and dimensions in accordance with plans and specifications prior to construction and shall be submitted to the City of Powell Engineer for their records.

The Contractor shall also furnish a complete set of shop drawings for the Precast Concrete Box Sections. Precast wingwalls and headwalls shall also be used, and a complete set of shop drawings for them shall also be furnished. EMH&T will review the size, location, and dimensions of precast components solely for geometric conformance to the plans. County Engineer will approve final acceptance of structure.

REINFORCING STEEL

Spacing of bars is from center of bars. Minimum lap lengths, No. 5 bar – 2'–5". The clearance of reinforcing steel from the face of the concrete shall be 2" minimum unless otherwise shown.



INDEX MAP
SCALE: 1" = 200'

MEMBRANE WATERPROOFING

Type 2 Waterproofing shall extend vertically down the sides of the culvert which are in contact with the backfill. Type 3 Waterproofing shall be applied to the top surface of the precast sections and shall extend vertically 1'–0" down the sides of the culvert overlapping the Type 2 Waterproofing. The exterior joint gap on the top and sides between the precast culvert sections shall be filled with Portland Cement Mortar prior to installing the membrane waterproofing. Joint wrap as specified in 603.06 is not required under the limits of the Membrane Waterproofing.

SEALING OF CONCRETE SURFACES

A concrete sealer shall be applied to the concrete surfaces where shown on the plans. See ODOT Supplemental Specification 864 for surface preparation requirements, application rates, material specifications and application procedures. All exposed concrete surfaces above grade, interior and exterior, shall be treated with a clear sealer designed to protect against graffiti, applied per manufacturer's recommendations. Sealer shall be "Repello" by the L.M. Scofield Co. (www.lmscofield.com) or a City/County approved alternate.

POROUS BACKFILL WITH FILTER FABRIC

1'–6" Thick, shall be placed behind the wingwalls, and along the sides of the 12'–0" x 8'–0" box, and shall extend as shown on the plans. A Geotech Engineer, employed by The Developer, shall also be present and approve placement and backfilling of conduit.

FOUNDATION BEARING PRESSURE

The design foundation bearing pressure is 2 ksf under the box culvert and wingwall footings. If unsuitable bearing material occurs at the bottom of the box elevation, lower the given elevation by over excavating, then replacing with suitable bearing material. The suitability of the bearing material shall be verified by a Registered Soils Engineer employed by The Developer. Any changes in the footing must be approved by Delaware County. Soils Engineer shall submit a written report to Delaware County and the City of Powell Engineer, attesting to the bearing pressure. The report shall be signed and sealed by a Professional Engineer. The cost to be included in the Lump Sum price bid for the box culvert.

BEVELED EDGES

All exposed edges shall be beveled as per ODOT CMS 508 unless otherwise shown.

PREFORMED EXPANSION JOINT FILLER

1" P.E.J.F. (Preformed Expansion Joint Filler) shall be placed between the cast–in–place Wingwalls and the Box Culvert.

GUARDRAIL

Guardrail shall be Type 5 and shall include 18'–9" length of Long–Span Guardrail over the Culvert on each side, and anchor assemblies as shown on the site plan.

2 WORKING DAYS BEFORE YOU DIG
CALL TOLL FREE 800–362–2764
OHIO UTILITIES PROTECTION SERVICE

BENCH MARKS
(NAVD 88)

B.M. #1 Iron Pin D.F. #112 opposite First Pole East of Railroad Tracks South Side Rutherford Road.
Elev. = 925.92

B.M. #2 Found E.M.H.T. Traverse I.P. #3; opposite Driveway to Residence 3049, Rutherford Road.
Elev. = 918.46

Owner/Developer
M/I Homes of Central Ohio, LLC
3 Easton Oval
Columbus, Ohio 43219

EXHIBIT A
ORD. 2006-65
NOT APPROVED SET.
APPROVED PLANS BY CITY ENGINEER TO BE USED

City of Powell:

The signatures below signify only concurrence with general purposes and general location of the project. All technical details remain the responsibility of the Engineer preparing the plans.

City Engineer ____ Date ____

Mayor ____ Date ____

Director of Development ____ Date ____

Delaware County:

Approval for work within Delaware County Right–of–Way only.

Delaware County Engineer ____ Date ____

PREPARED BY:
EMH&T INC.
ENGINEERS, SURVEYORS, PLANNERS, SCIENTISTS
EVANS, MECHWART, HAMBLETON & TILTON, INC.
170 MILL STREET
GAHANNA, OHIO 43230
TELEPHONE (614) 471-5150
FACSIMILE (614) 471-9286

Registered Engineer No. ____ Date ____

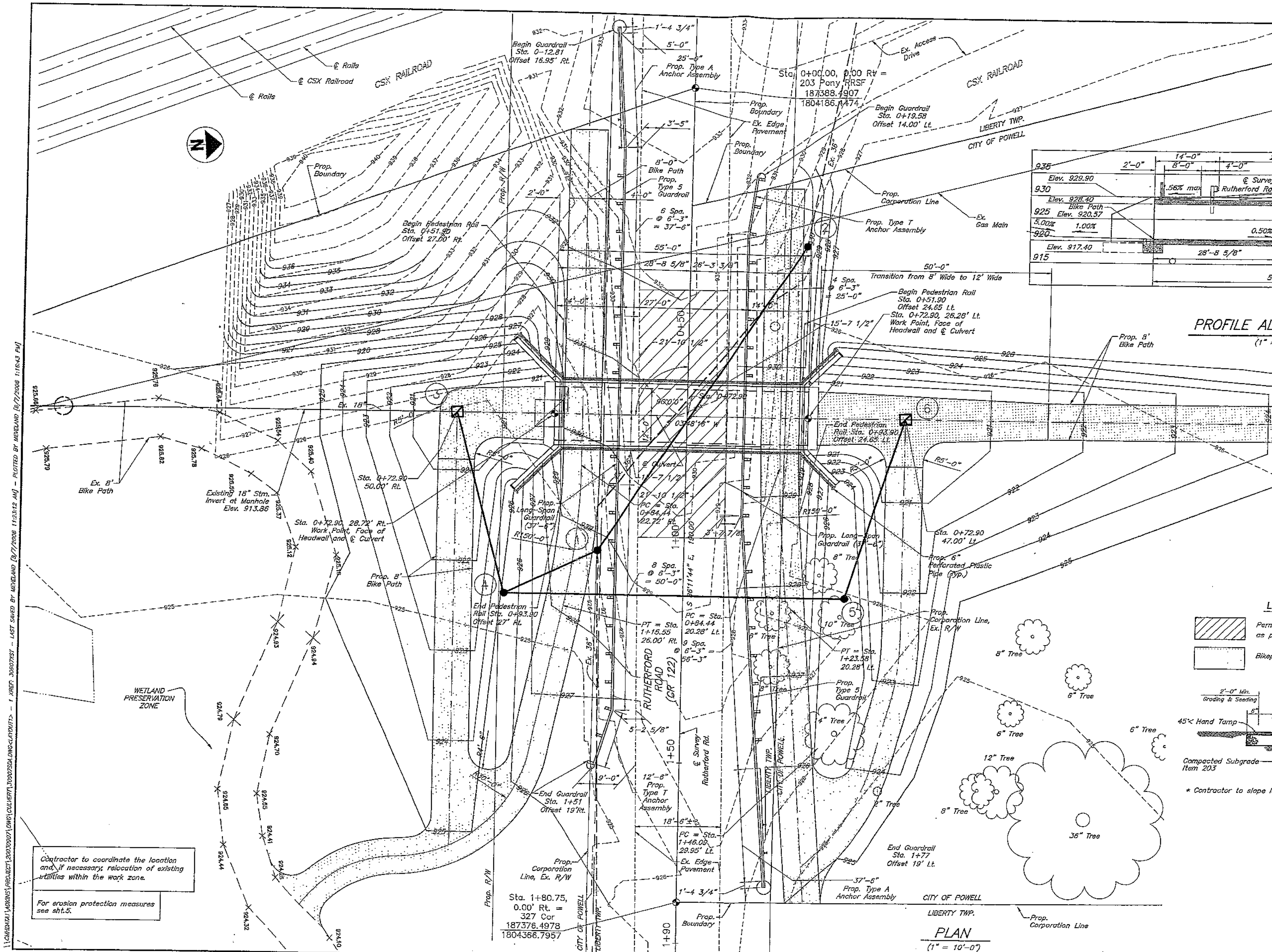
Job No. 2003-0907 | Date March, 2005 | Sheet 1 of 6 | Scale 1" = 200'

CITY OF POWELL, DELAWARE COUNTY, OHIO
STREET AND STORM SEWER PLAN
FOR
RUTHERFORD ROAD UNDERPASS AT THE WOODS OF POWELL SOUTH

EVANS, MECHWART, HAMBLETON & TILTON, INC.
ENGINEERS, SURVEYORS, PLANNERS, SCIENTISTS
170 MILL STREET
GAHANNA, OHIO 43230
TELEPHONE (614) 471-5150
FACSIMILE (614) 471-9286

REVISIONS
MARK	DATE	DESCRIPTION

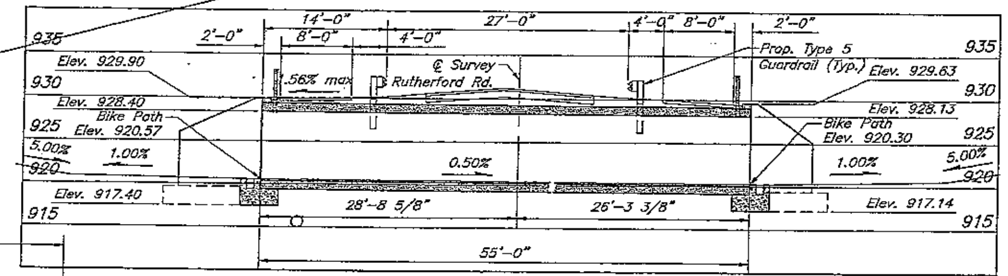
\\EMHDATA1\ADKINS\PROJECT\20030907\DWG\CULVERT\30907SDC.DWG<LAYOUT1> - 4 XREFS: 30907XBS, CLINE, HYDRO, 30907XST - LAST SAVED BY MEVELAND [8/7/2006 3:10:14 PM] - PLOTTED BY MEVELAND [8/7/2006 3:10:15 PM]



Contractor to coordinate the location and, if necessary, relocation of existing utilities within the work zone.

For erosion protection measures see sht.5.

PLAN
(1" = 10'-0")

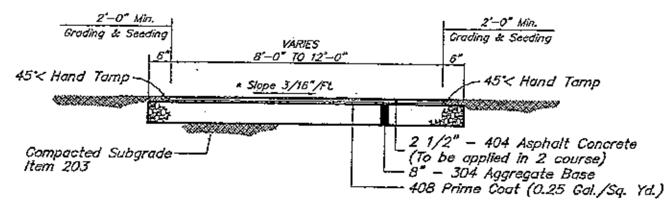


PROFILE ALONG ℄ CULVERT
(1" = 10'-0")

Existing Pavement Removal & Replacement
Begin Sta. 0+45
End Sta. 1+00

LEGEND

(hatched)	Permanent Pavement Replacement as per COLS Std. Dwg. 1441 Dr. A
(stippled)	Bikepath to be Built with this Plan



* Contractor to slope leisure path to drain.

LEISURE PATH DETAIL
No Scale

CITY OF POWELL, OHIO
STREET AND STORM SEWER PLAN
FOR
RUTHERFORD ROAD UNDERPASS AT THE WOODS OF POWELL SOUTH
CULVERT SITE PLAN

EMH&T
EVANS, MECHWART, HAMBLETON & TILTON, INC.

Date:	March, 2005
Scale:	As Noted
Job No:	2003-0807
Sheet	3 of 6