

GILBERT & WEST TOWN INTERCOUNTY DRAIN

**Windsor Township, Eaton County and City of Lansing,
Delhi Township, Ingham County, Michigan**

PRELIMINARY ENGINEERING REPORT



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Project No. 02003
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1.0 RECOMMENDATIONS

The following recommendations refer to the Gilbert and West Town Intercounty Drain:

For portions of the drain from the Grand River to Waverly Road:

- Obtain easements over all portions of the drain not specifically described in an existing easement
- Bank stabilization where erosion or bank is collapsing from surrounding area
- Remove logjams where necessary
- Redirect flow in approximately 10 areas to reduce erosion and help in bank stabilization efforts
- Replace the private drain crossing approximately 150 feet west of Waverly Road where the drive is caving, collapsing the existing pipe and a mis-matched extension is in place

For portions of the drain from Waverly Road to the City of Lansing Detention System:

- Obtain easements over all portions of the various lands that the drain traverses
- Remove logjams throughout the entire portion of the drain in this area
- Bank stabilization where erosion or bank is collapsing from surrounding area
- Replace private crossings where pipe sizes are inadequate or crossing is collapsing and deflecting existing pipes
- Remove any debris or obstructions throughout the entire portion of the drain in this area
- Construct headwalls, riprap inlets, or side inlets at several locations where private drains or tiles discharge to the drain including where existing county drains may discharge to the drain
- Redirect flow in approximately 25 locations for bank stabilization and to reduce flow obstructions
- Selectively clear trees and shrubs surrounding the drain and on the existing banks and around the flow channel
- Remove accumulated sediment, approximately 5000 feet of open channel cleanout

2.0 INTRODUCTION

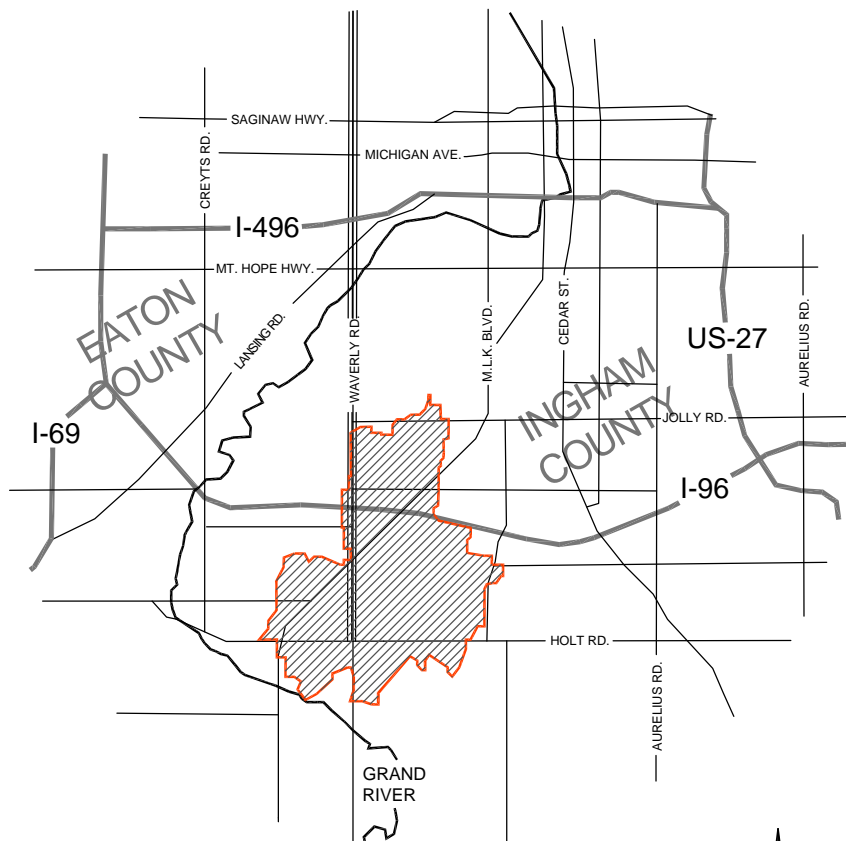
On May 6, 2003 resolution number 2003-037, located in Appendix A of this report, from Delhi Charter Township authorized the Township to petition the director of the Department of Agriculture and the drainage boards for the West Town Intercounty Drain Drainage District and the Gilbert Intercounty Drain Drainage District. This petition asks for the maintenance, improvement and consolidation of the Gilbert Intercounty Drain and the West Town Intercounty Drain. The petition also asks for the adding of lands to the consolidated drainage district into a single intercounty drainage district known as the Gilbert and West Town Intercounty Drain Drainage District pursuant to Act 40 of the Public Acts of 1956, known as the Michigan Drain Code of 1956. The petition states that the said drains need cleaning out, relocating, widening, deepening, straightening, extending, tiling, interconnecting or otherwise improving, or adding branches and consolidation as is necessary and conducive to the public health, convenience and welfare. The petitioner is making this petition in order to better maintain, operate and manage related activities of drain maintenance and improvement in the proposed consolidated drainage district.

The Gilbert and West Town Intercounty Drain Drainage District is located and established in both Ingham and Eaton counties. This Intercounty drainage district is to contain the lands that are currently drained through the existing route and courses of the Gilbert Intercounty Drain and its corresponding branch drains and the West Town Intercounty Drain and its corresponding branch drains in the Windsor and Delhi Township. This report has been prepared to fulfill the requirements and provisions of Chapter 8 of the Michigan Drain Code of 1956.

The Gilbert and West Town Intercounty Drainage Board on October 28, 2003 determined that the petition from Delhi Township was valid and found practical. The Order of Practicability and Consolidation of Proposed Drain can be seen in Appendix B of this report. Fitzgerald Henne & Associates, Inc. was asked to survey the Gilbert and West Town Intercounty Drain and ascertain the area which will be drained by the proposed drain improvement and establish recommendations for said proposed drain improvements.

The proposed Gilbert and West Town Intercounty Drain Drainage District is located in the southerly portion of the City of Lansing area, centered near Sections 7 and 18 of Delhi Township in Ingham County, Michigan and the westerly portions of the drainage district are located in Sections 13 and 24 of Windsor Township in Eaton County, Michigan. The northerly limits of the drainage district extend just north of Jolly Rd. near Reo Rd in the City of Lansing. The southerly limits of the drainage district include lands along Jarvis Highway and McQue Rd in Delhi Township. The westerly portion of the drainage district follows Waverly Rd along the northerly portions and west of M-99 along the southerly portions in Windsor Township. The easterly portions of the drainage district are near M-99 along the northerly portions and mostly along Washington Avenue along the southerly portions. A location map of the drainage district can be seen as Figure #1 in this report.

FIGURE #1



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NO SCALE

The proposed Gilbert and West Town Intercounty Drain Drainage District includes an area that is currently developed in Delhi Township with general businesses, family-low density residential to family-high density residential, industrial manufacturing, multiple-family residential areas in the northerly portion of the drainage district and agricultural and family-low density residential areas in the southerly portions of the drainage district. An existing land use map for portions of the drainage district in Delhi Township can be seen as Figure #2 in this report. Current land use in Windsor Township within the drainage district shows primarily agricultural areas with some low-density residential areas and commercial areas. A Current Land use map of Windsor Township can be seen as Figure #3 in this report.

A map of the location of the Gilbert and West Town Intercounty Drain Drainage District can be seen in Appendix C of this report.

The Proposed Gilbert and West Town Intercounty Drain Drainage District consists of a consolidation of two major drainage districts, as part of the petition:

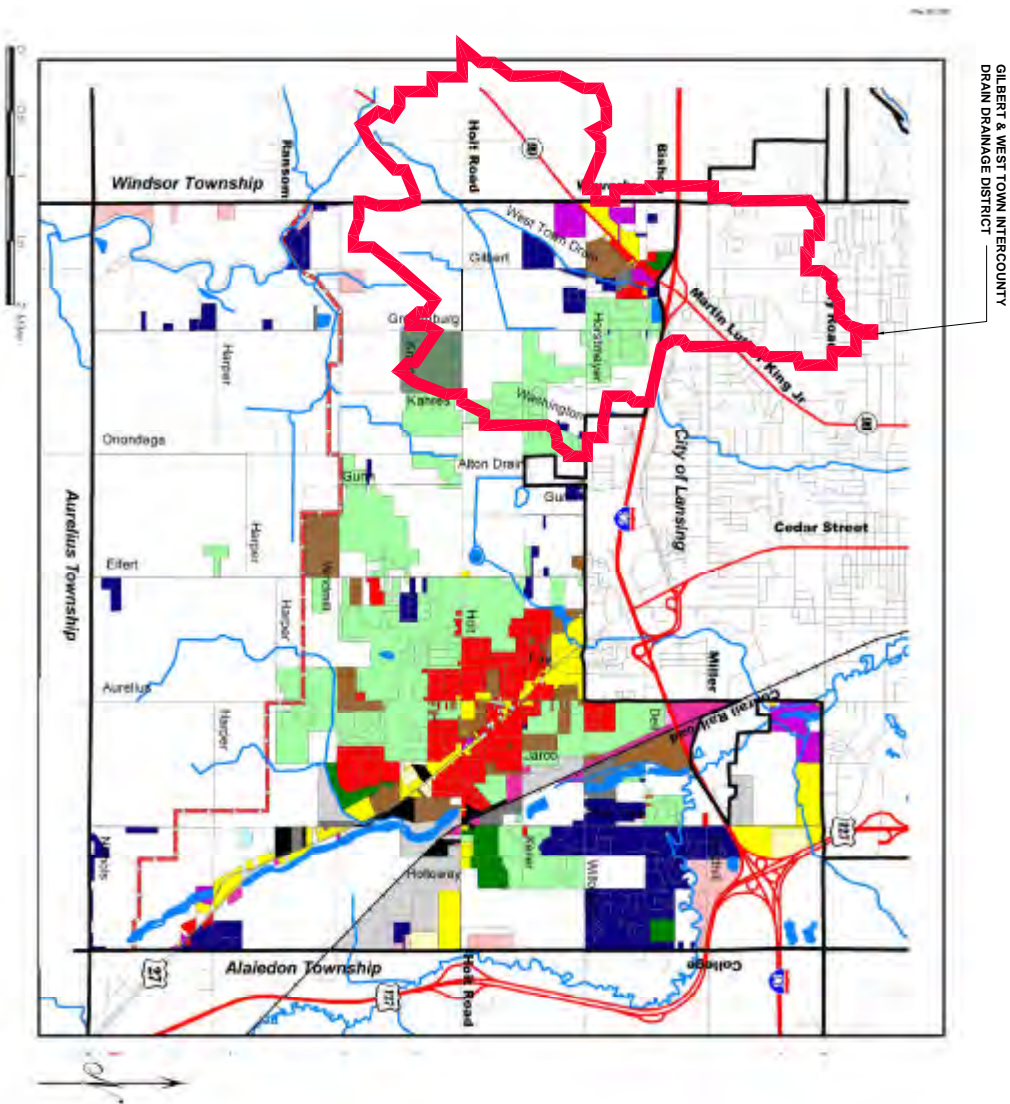
The first drain is the West Town Drain, which begins, at its intersection with the centerline of the Gilbert Drain at a location just North of Holt Rd and East of Waverly Rd. It then follows a northeasterly direction in Sections 7 and 18 of Delhi Township to Bishop Lake. The drain follows a northwesterly direction from Bishop Lake to its point of ending at the City of Lansing detention system. This detention system is located northwest of the interchange of Michigan State Highway M-99 and Interstate I-96 and services storm water discharge from the City of Lansing areas north within the drainage district. The West Town Drain was constructed in 1904 and no record of the route and course could be found.

The second drain contributing to the consolidated intercounty district is the Gilbert Drain, which begins at a point in the Grand River southwest from the center of Section 24, Delhi Township, Ingham County, Michigan. It follows in a northeasterly direction across Waverly and Holt Roads and intersects the West Town Drain at a location just north of Holt Rd and east of Waverly Rd. It continues northeasterly through Section 18 of Delhi Township through various branches and consolidated districts. The Gilbert Drain is an intercounty drain, established as such in 1946, and was originally surveyed and constructed in 1897.

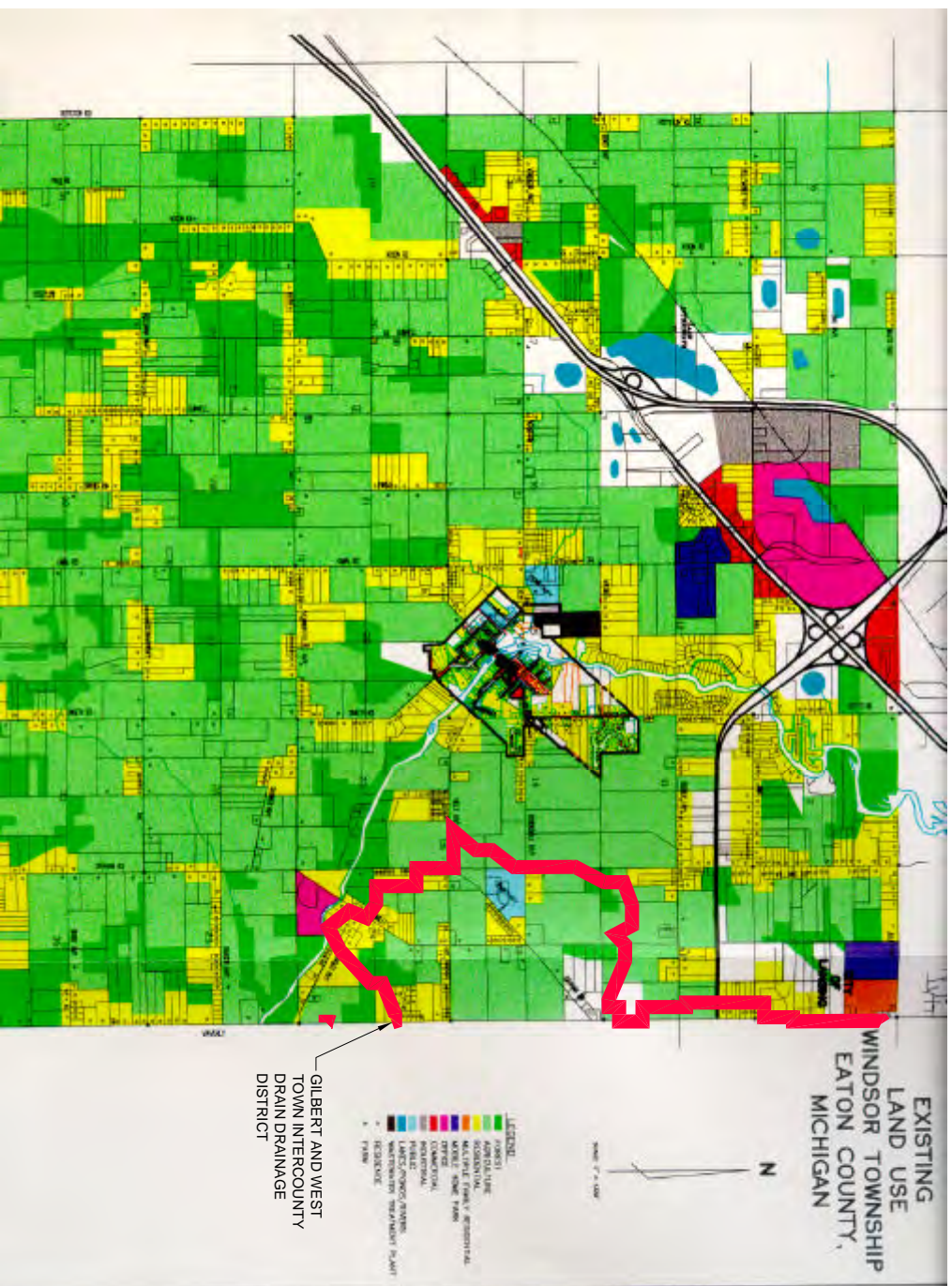
The Proposed Gilbert and West Town Intercounty Drain Drainage District boundary along with the corresponding description and adjacent district locations can be seen in Appendices D, E, F, G and H of this report.

The proposed route and course description of the Gilbert and West Town Intercounty Drain can be seen in Appendix I (southerly portion) and Appendix J (northerly portion) of this report.

FIGURE #2
EXISTING LAND USE



**FIGURE #3
EXISTING LAND USE
WINDSOR TOWNSHIP**



The existing Drain Conditions and Flow Problems can be seen in Appendices K, L and M of this report.

A Conflict Map, showing all conflicts with adjacent drainage districts or past assessment rolls can be seen in Appendix N of this report.

The Proposed Gilbert and West Town Intercounty Drain Drainage District is 4413 acres in size.

At the time of this report the following tasks were performed as part of this project:

- a) A preliminary engineering report prepared by Fitzgerald Henne & Associates Inc. giving a list of recommendations for the proposed drain along with the existing conditions. Included in this preliminary engineering report are various exhibits and figures showing the proposed Intercounty Drain Drainage District Boundary with Drainage District Description maps and a route and course description maps, including drain conditions and conflicts.
- b) Field Surveying within the Proposed Intercounty Drain Drainage District along with adjacent drainage district research to determine the lands drained by the proposed and consolidated drainage district. Fitzgerald Henne & Associates Inc. located the West Town Drain. Wolverine Engineers and Surveyors located portions of both the Gilbert and West Town Drain near Holt Hwy and Waverly Rd.
- c) This report and its recommendations are based on physical inspection of the drain. At this time, no modeling has been performed. Although not a specific recommendation, we encourage the Intercounty Drainage Board to discuss the need for a hydraulic analysis to determine capacities and identify deficiencies.

3.0 EXISITING CONDITIONS

The Gilbert and West Town Intercounty Drain is a primarily open watercourse with a defined channel bottom width and adequate side banks in most locations. The northerly portions however have significant flow problems due to fallen trees, debris and sediment buildup, and overgrown vegetation along the side slopes. Drainage complaint records from the Ingham County Drain Commissioner's office reveal two complaints due to flooding from the former West Town Drain (northerly portion).

The southerly portion of the drain, that west of Waverly Road, was cleaned in 2001-2002 for maintenance purposes to remove flow obstructions and logjams. The southerly portion of the drain is relatively open with only minor flow obstructions in some areas. The banks on the southerly portion are six to twelve feet high in most locations with some minor erosion problems. The bottom width of the drain ranges from six to ten feet in width with an average depth from the bank to the flow line of the channel ranging from six inches to eighteen inches. The easterly bank near Jarvis Highway is relatively low with only twelve inches to eighteen inches above the bottom depth. There is sufficient overflow however in this area to the east with wetland vegetation approximately fifty feet easterly from the bank's edge. The easterly bank of the southerly portion of the drain, near Jarvis Highway, is somewhat lower by three to six feet in some locations than the westerly bank. There are five existing crossings from Jarvis Highway to Waverly Road. The Jarvis Highway crossing is an existing 72" corrugated metal pipe (CMP). The upstream three crossings are all existing 60" CMP's. The northerly most crossing, 150 feet south of the Waverly Road crossing, is an existing 48" CMP (inner pipe) that is caving in from the private drive located over the top.

The northerly portion of the drain, that east of Waverly Road, has a much less discernable flow channel in most areas and contains numerous flow obstructions with debris and sediment buildup, logjams and fallen trees. The surrounding area around the drain has a considerable amount of overhanging brush and trees that contribute to the flow and obstruction problems. The drain has eroded banks towards its more northerly portions as well as significant sediment buildup. Portions of the drain flow unobstructed but the majority of the flow channel has fallen trees or logjams restricting the flow. As the northerly portion of the drain nears Holt Road the banks become high, ranging from six to twelve feet from the channel bottom. The bottom width of the drain ranges from six to ten feet in most locations with a few areas becoming wider because of flow obstructions. The portion of the drain just north of the Barnes Drain outlet is heavily overgrown with trees and shrub vegetation around the banks with significant flow obstructions along the drain channel. The drain was difficult to access from approximately 134+50 to 147+00 due to a fence around the drain and corresponding crossings under Shroyer's Auto Parts. The portion of the drain in Section 18 of Delhi Township has several private field tiles that discharge to the main drain. There are several private crossings, mostly corresponding to property lines across the drain. These crossings are relatively small in length, less than twenty-five feet, and appear to be in mostly good condition with 60" CMP's except those located in Shroyer's Auto Parts which appear inadequate in size and condition.

There are several existing easements that cover portions of the drain in Eaton County but there are no recorded easements over the main drain in Ingham County. There are several general flowage easement documents that were written at the time the West Town Drain was constructed in 1904, but these documents do not describe a route and course of said drain in Ingham County.

Table #1, seen on the following page, shows a detailed log of the existing drain conditions.

Pictures of the drain conditions of the Gilbert and West Town Intercounty Drain can be seen on the following pages.

TABLE #1 DRAIN CONDITIONS AND FLOW PROBLEMS		
Location	Description	Picture #
1+00	Outlet to Grand river	1
7+00	72" CMP, Jarvis Hwy Crossing	2
11+00	Low Bank Heights	3
12+20	Walking Bridge	4
14+50	Minor Stream Bank Erosion	5
23+50	Hetrick Drain Outlet (Open Ditch)	6
26+00	Flow Obstructions, Bank Erosion and Debris Build Up	7
30+00	Existing 60" CMP Crossing	8
36+00	Flow Obstructions, Fallen Tree	9
37+00	Existing 60" CMP Crossing	10
48+00	Drain looking south	11
55+50	Private Drive Crossing: 48" CMP (inner pipe), collapsing, 12" HDPE from east	12,13
57+00	Waverly Rd Crossing	14,15
60+50	Holt Rd Crossing, 8" CMP from west	16,17
61+00	Heavy Brush on both east and west banks	18
63+50	Proposed Consolidated Drain Outlet (Open Ditch)	19
67+00	Heavy Flow Obstructions, Fallen Trees, Over Grown Brush & Logjams	20
67+50	Heavy Flow Obstructions, Fallen Trees, Over Grown Brush & Logjams	21
69+00	60" CMP Crossing	22
70+50	Flow Obstructions, Logjams	23
74+50	Fallen Trees, Log Jams and Sediment build up	24
75+00	Unknown outlet from west	25,26
77+00	Fallen Trees, Sediment & Debris build up	27
81+00	Large Fallen Trees, Flow Obstructions	28
85+00	Fallen Trees, Logjams & Debris build up	29
90+50	60" CMP Crossing	30
93+00	Flow Obstructions and Debris build up	31
96+50	60" CMP Crossing	32
97+00	8" VCP from west	33
101+00	Flow Obstructions, Fallen Trees, Logjams & Debris	34
104+00	Flow Obstructions, Fallen Trees, Sediment & Debris build up	35
108+00	8" VCP from east	36
109+00	Fallen Trees, Logjams, Sediment & Debris build up	37
110+00	Fallen Trees, Logjams & Debris build up	38
119+00	Flow Obstructions, Logjams & Eroded Banks	39
120+00	Large Fallen Trees, Heavy Logjams & Debris Build Up	40
121+00	Large Fallen Trees & Heavy Logjams	41
122+00	Large Fallen Trees, Heavy Logjams & Flow Obstructions	42
123+00	Barnes, Waverly Commerce Park Drain Outlet (Open Ditch)	43
126+00	Logjams, Sediment & Debris Build up	44
129+00	Logjams, Fallen Trees & Debris build up	45
130+00	Logjams, Fallen Trees & Debris build up	46
132+00	Logjams, Flow Obstructions & Debris build up	47
133+00	Flow Obstructions, Logjams, Sediment & Debris build up	48
134+00	Logjams, Debris build up & heavy Sediment build up	49
136+50	Eroded banks & Sediment build up	50
137+50	60" CMP into Shroyer's Auto Repair	51
139+50	Private drive crossing	52
141+00	Unknown 24" RCP outlet from east	53
142+50	Logjams, Debris & Sediment build up	54
143+50	60" CMP, private drive crossing	55
146+00	Private Crossing, 4 pipes (3 HDPE & 1 CMP), crossing collapsing pipes	56,57
146+25	Logjams, Debris build up & Flow Obstructions	58
147+50	Bridge Crossing	59
151+00	Drain south of Bishop Highway	60
151+00	60" CMP, Bishop Hwy Crossing, 12" RCP on north outlets from private det. pond	61,62
152+00	I-96 drainage ditch outlet (large fallen trees)	63
152+00	Large Fallen Trees and Branches, Logjam & Sediment Build Up	64
157+50	60" RCP under I-96 interchange, 2-12" HDPE from Bishop Lake	65
159+00	Heavy overhead brush & Flow Obstructions in channel	66
168+50	60" RCP under M-99 Crossing (east side)	67
168+50	Drain east of M-99	68
170+00	60" RCP under M-99 Crossing (west side)	69
171+00	60" RCP under I-96 interchange west bound on ramp (south side)	70
171+50	60" RCP under I-96 interchange west bound on ramp (north side)	71
172+00	Drain north of I-96, looking west	72

179+50	Drain looking north	73
182+50	60" CMP from City of Lansing detention system	74

PICTURE #1



Picture #1 shows the Gilbert and West Town Intercounty Drain at its discharge point to the Grand River in Section 24, Windsor Township, Eaton County.

PICTURE #2



Picture #2 shows the Gilbert and West Town Intercounty Drain at the south side of the 72" Jarvis Hwy crossing, near Station 7+00 in Section 24, Windsor Township, Eaton County.

PICTURE #3



Picture #3 shows the Gilbert and West Town Intercounty Drain 400' North of Jarvis Hwy with low bank heights, near Station 11+00 in Section 24, Windsor Township, Eaton County.

PICTURE #4



Picture #4 shows a walking bridge over the Gilbert and West Town Intercounty Drain, near Station 12+20 in Section 24, Windsor Township, Eaton County.

PICTURE #5



Picture #5 minor stream bank erosion along the east side bank of the Gilbert and West Town Intercounty Drain, near Station 14+50 in Section 24, Windsor Township, Eaton County.

PICTURE #6



Picture #6 shows the discharge from the Hetrick Drain to the west into the Gilbert and West Town Intercounty Drain, near Station 23+50 in Section 24, Windsor Township, Eaton County.

PICTURE #7



Picture #7 shows a fallen tree and minor flow obstructions on the Gilbert and West Town Intercounty Drain 2000' North of Jarvis Hwy, near Station 26+00 in Section 24, Windsor Township, Eaton County.

PICTURE #8



Picture #8 shows a 60" CMP crossing, under a private dirt path, on the Gilbert and West Town Intercounty Drain, near Station 30+00 in Section 24, Windsor Township, Eaton County.

PICTURE #9



Picture #9 shows a fallen tree and flow obstructions on the Gilbert and West Town Intercounty Drain, near Station 36+00 in Section 24, Windsor Township, Eaton County.

PICTURE #10



Picture #10 shows a 60" CMP crossing, under a private dirt path, on the Gilbert and West Town Intercounty Drain, near Station 37+00 in Section 24, Windsor Township, Eaton County.

PICTURE #11



Picture #11 shows a typical view of the Gilbert and West Town Intercounty Drain, this picture being near Station 48+00, with stable banks and relatively few flow obstructions, along its southerly portion in Section 24, Windsor Township, Eaton County.

PICTURE #12



Picture #12 shows the Gilbert and West Town Intercounty Drain at the south side of a private drive crossing 200 feet west of Waverly Rd, near Station 55+50 in Section 24, Windsor Township, Eaton County.

PICTURE #13



Picture #13 shows the Gilbert and West Town Intercounty Drain at the north side of a private drive crossing 200 feet west of Waverly Rd, near Station 55+50 in Section 24, Windsor Township, Eaton County. The crossing appears to be collapsing and an undersized pipe is in place underneath the private drive.

PICTURE #14



Picture #14 shows the Gilbert and West Town Intercounty Drain crossing on the west side of Waverly Road near Station 56+50 in Section 24, Windsor Township, Eaton County.

PICTURE #15



Picture #15 shows the Gilbert and West Town Intercounty Drain crossing on the east side of Waverly Road near Station 57+00 in Section 19, Delhi Township, Eaton County.

PICTURE #16



Picture #16 shows the Gilbert and West Town Intercounty Drain crossing on the south side of Holt Road near Station 59+50 in Section 19, Delhi Township, Eaton County. The crossing has a significant amount of overhanging brush and various flow obstructions.

PICTURE #17



Picture #17 shows the Gilbert and West Town Intercounty Drain crossing on the north side of Holt Road near Station 60+50 in Section 19, Delhi Township, Eaton County. There is erosion occurring around the banks and overhanging brush along with an 8" CMP discharging to the drain from the west.

PICTURE #18



Picture #18 shows the Gilbert and West Town Intercounty Drain just to the north of Holt Road, near Station 61+00 in Section 18, Delhi Township, Ingham County. The flow channel is obstructed and there is significant overgrowth from surrounding trees along the banks.

PICTURE #19



Picture #19 shows the Gilbert and West Town Intercounty Drain just to the North of Holt Hwy, near Station 63+50 in Section 18, Delhi Township, Ingham County. The Proposed Consolidated Drain discharges to the drain from the east.

PICTURE #20



Picture #20 shows the Gilbert and West Town Intercounty Drain looking north located near Station 67+00 in Section 18, Delhi Township, Ingham County. There is heavy brush on both sides of the bank and flow obstructions along the flow channel.

PICTURE #21



Picture #21 shows flow obstructions, overgrown brush and logjams along the Gilbert and West Town Intercounty Drain looking north located near Station 67+50 in Section 18, Delhi Township, Ingham County.

PICTURE #22



Picture #22 shows the north side of a 60" CMP crossing under a private grass drive along the Gilbert and West Town Intercounty Drain looking north located near Station 69+00 in Section 18, Delhi Township, Ingham County.

PICTURE #23



Picture #23 shows the Gilbert and West Town Intercounty Drain near Station 70+50 in Section 18, Delhi Township, Ingham County. There are significant flow channel obstructions and logjams with sediment and debris buildup.

PICTURE #24



Picture #24 shows the Gilbert and West Town Intercounty Drain in poor condition with a fallen tree, logjams and some sediment build up near Station 74+50 in Section 18, Delhi Township, Ingham County.

PICTURE #25



Picture #25 shows an outlet discharging from the west to the Gilbert and West Town Intercounty Drain located near Station 75+00 in Section 18, Delhi Township, Ingham County.

PICTURE #26



Picture #26 shows the outlet discharging to the Gilbert and West Town Intercounty Drain near Station 75+00 further upstream toward Waverly Road in Section 18, Delhi Township, Ingham County.

PICTURE #27



Picture #27 shows flow channel obstruction, logjams and debris buildup along the Gilbert and West Town Intercounty Drain near Station 77+00 in Section 18, Delhi Township, Ingham County.

PICTURE #28



Picture #28 shows large fallen trees obstructing flow along the Gilbert and West Town Intercounty Drain near Station 81+00 in Section 18, Delhi Township, Ingham County.

PICTURE #29



Picture #29 shows the Gilbert and West Town Intercounty Drain with flow obstructions and sediment buildup located near Station 85+00 in Section 18, Delhi Township, Ingham County.

PICTURE #30



Picture #30 shows a 60" CMP crossing on the Gilbert and West Town Intercounty Drain located near Station 90+50 in Section 18, Delhi Township, Ingham County.

PICTURE #31



Picture #31 shows the Gilbert and West Town Intercounty Drain with flow obstructions and debris buildup located near Station 93+00 in Section 18, Delhi Township, Ingham County.

PICTURE #32



Picture #32 shows the south side of a 60" CMP crossing under a grass pathway on the Gilbert and West Town Intercounty Drain located near Station 96+50 in Section 18, Delhi Township, Ingham County.

PICTURE #33



Picture #33 shows an 8" VCP that outlets to the Gilbert and West Town Intercounty Drain along the west bank located near Station 97+00 in Section 18, Delhi Township, Ingham County.

PICTURE #34



Picture #34 shows major flow obstructions with logjams and debris buildup along the Gilbert and West Town Intercounty Drain near Station 101+00 in Section 18, Delhi Township, Ingham County.

PICTURE #35



Picture #35 shows the Gilbert and West Town Intercounty Drain in poor condition with fallen trees, sediment and debris build up near Station 104+00 in Section 18, Delhi Township, Ingham County.

PICTURE #36



Picture #36 shows an 8" VCP that outlets to the Gilbert and West Town Intercounty Drain along the east bank located near Station 108+00 in Section 18, Delhi Township, Ingham County.

PICTURE #37



Picture #37 shows the Gilbert and West Town Intercounty Drain with fallen trees and debris build up near Station 109+00 in Section 18, Delhi Township, Ingham County.

PICTURE #38



Picture #38 shows the Gilbert and West Town Intercounty Drain with flow obstructions and fallen trees near Station 110+00 in Section 18, Delhi Township, Ingham County.

PICTURE #39



Picture #39 shows the Gilbert and West Town Intercounty Drain having eroded banks with logjams, debris and flow obstructions near Station 119+00 in Section 18, Delhi Township, Ingham County.

PICTURE #40



Picture #40 shows the Gilbert and West Town Intercounty Drain in poor condition with large fallen trees and logjams and debris buildup near Station 120+00 in Section 18, Delhi Township, Ingham County.

PICTURE #41



Picture #41 shows the Gilbert and West Town Intercounty Drain in with large fallen trees and logjams near Station 121+00 in Section 18, Delhi Township, Ingham County.

PICTURE #42



Picture #42 shows the Gilbert and West Town Intercounty Drain in with large fallen trees, logjams and flow obstructions near Station 122+00 in Section 18, Delhi Township, Ingham County.

PICTURE #43



Picture #43 shows the outlet from the Barnes Drain from the west to the Gilbert and West Town Intercounty Drain near Station 123+00 in Section 18, Delhi Township, Ingham County.

PICTURE #44



Picture #44 shows the Gilbert and West Town Intercounty Drain in poor condition with logjams, debris build up and heavy sediment build up near Station 126+00 in Section 7, Delhi Township, Ingham County.

PICTURE #45



Picture #45 shows the Gilbert and West Town Intercounty Drain in poor condition with logjams, fallen trees and debris build up near Station 129+00 in Section 7, Delhi Township, Ingham County.

PICTURE #46



Picture #46 shows the Gilbert and West Town Intercounty Drain in with logjams, fallen trees and debris build up near Station 130+00 in Section 7, Delhi Township, Ingham County.

PICTURE #47



Picture #47 shows the Gilbert and West Town Intercounty Drain in with logjams, fallen trees and debris build up near Station 132+00 in Section 7, Delhi Township, Ingham County.

PICTURE #48



Picture #48 shows the Gilbert and West Town Intercounty Drain in with logjams, debris and heavy sediment build up near Station 133+00 in Section 7, Delhi Township, Ingham County.

PICTURE #49



Picture #49 shows the Gilbert and West Town Intercounty Drain in poor condition with logjams, debris build up and heavy sediment build up near Station 134+00 in Section 7, Delhi Township, Ingham County.

PICTURE #50



Picture #50 shows the Gilbert and West Town Intercounty Drain with eroded banks and sediment build up near Station 136+50 in Section 7, Delhi Township, Ingham County.

PICTURE #51



Picture #51 shows the south side of a 60" CMP crossing of the Gilbert and West Town Intercounty Drain under a fence into Shroyer's Auto Parts property near Station 137+50 in Section 7, Delhi Township, Ingham County.

PICTURE #52



Picture #52 shows the south side of a crossing of the Gilbert and West Town Intercounty Drain under a private drive located near Station 139+50 in Shroyer's Auto Parts in Section 7, Delhi Township, Ingham County.

PICTURE #53



Picture #53 shows an unknown pipe discharging to the Gilbert and West Town Intercounty Drain near Station 141+00 in Shroyer's Auto Parts in Section 7, Delhi Township, Ingham County.

PICTURE #54



Picture #54 shows flow obstructions and a logjam on the Gilbert and West Town Intercounty Drain near Station 142+50 in Shroyer's Auto Parts in Section 7, Delhi Township, Ingham County.

PICTURE #55



Picture #55 shows a 60" CMP private crossing on the Gilbert and West Town Intercounty Drain near Station 143+50 in Shroyer's Auto Parts in Section 7, Delhi Township, Ingham County.

PICTURE #56



Picture #56 shows the south side of a private crossing on the Gilbert and West Town Intercounty Drain near Station 146+00 in Shroyer's Auto Parts in Section 7, Delhi Township, Ingham County.

PICTURE #57



Picture #57 shows the north side of a private crossing on the Gilbert and West Town Intercounty Drain near Station 146+00 in Shroyer's Auto Parts in Section 7, Delhi Township, Ingham County. Some of the HDPE pipe in place is blocked with flow obstructions and are collapsing from the crossing above.

PICTURE #58



Picture #58 shows logjams, debris build up and flow obstructions on the Gilbert and West Town Intercounty Drain near Station 146+25 in Shroyer's Auto Parts in Section 7, Delhi Township, Ingham County.

PICTURE #59



Picture #59 shows a bridge crossing on the Gilbert and West Town Intercounty Drain located near Station 147+50 in Section 7, Delhi Township, Ingham County.

PICTURE #60



Picture #60 shows the Gilbert and West Town Intercounty Drain south of the Bishop Highway crossing near Station 151+00 in Section 7, Delhi Township, Ingham County.

PICTURE #61



Picture #61 shows the south side of the Bishop Highway crossing of the Gilbert and West Town Intercounty Drain near Station 151+00 in Section 7, Delhi Township, Ingham County.

PICTURE #62



Picture #62 shows the north side of the Bishop Highway crossing of the Gilbert and West Town Intercounty Drain near Station 152+00 in Section 7, Delhi Township, Ingham County. There is a 12" RCP flared end section that outlets to the drain from a private detention pond to the west.

PICTURE #63



Picture #63 shows a drainage ditch from Interstate-96 runoff discharging to the Gilbert and West Town Intercounty Drain near Station 152+00 just north of Bishop Highway in Section 7, Delhi Township, Ingham County.

PICTURE #64



Picture #64 shows the Gilbert and West Town Intercounty Drain with flow obstructions and large fallen trees just north of Bishop Highway near Station 152+00 in Section 7, Delhi Township, Ingham County.

PICTURE #65



Picture #65 shows the Gilbert and West Town Intercounty Drain as it crosses Interstate-96 near Station 157+50 in Section 7, Delhi Township, Ingham County with two 12" HDPE pipes discharging as overflow from Bishop Lake.

PICTURE #66



Picture #66 shows the Gilbert and West Town Intercounty Drain just north of the Interstate-96 east on ramp crossing near Station 159+00 in the City of Lansing, Ingham County. There is heavy overhead brush and flow obstructions in the drain channel.

PICTURE #67



Picture #67 shows a 60" RCP and headwall on the east side crossing of the Gilbert and West Town Intercounty Drain as it crosses M-99/Martin Luther King Blvd. near Station 168+50 in the City of Lansing, Ingham County.

PICTURE #68



Picture #68 shows the Gilbert and West Town Intercounty Drain looking east from the M-99/Martin Luther King Blvd. crossing near Station 168+50 in the City of Lansing, Ingham County.

PICTURE #69



Picture #69 shows the west side crossing of the Gilbert and West Town Intercounty Drain under M-99/Martin Luther King Blvd. near Station 170+00 in the City of Lansing, Ingham County.

PICTURE #70



Picture #70 shows a 60" RCP and headwall on the south side crossing of the Gilbert and West Town Intercounty Drain under Interstate-96 west bound on ramp near Station 171+00 in the City of Lansing, Ingham County.

PICTURE #71



Picture #71 shows the north side crossing of the Gilbert and West Town Intercounty Drain under Interstate-96 west bound on ramp near Station 171+50 in the City of Lansing, Ingham County. There are also flow obstructions and trees in the flow channel of this area.

PICTURE #72



Picture #72 shows the Gilbert and West Town Intercounty Drain just north of Interstate-96 near Station 172+00 in City of Lansing, Ingham County.

PICTURE #73



Picture #73 shows the Gilbert and West Town Intercounty Drain looking north near Station 179+50 in City of Lansing, Ingham County.

PICTURE #74



Picture #74 shows a 60" CMP of the Gilbert and West Town Intercounty Drain at its point of ending from its discharge point from the City of Lansing detention system near Station 182+50 in City of Lansing, Ingham County.

4.0 PROPOSED INTERCOUNTY DRAIN DRAINAGE DISTRICT BOUNDARY AND ROUTE & COURSE DESCRIPTIONS

The proposed Gilbert and West Town Intercounty Drain Drainage District was derived from field surveying performed Fitzgerald Henne & Associates. The Gilbert and West Town Intercounty Drain Route & Course was derived from Wolverine Engineering, for purposes of a Delhi Township Sanitary Sewer, as well as existing surveyed centerline information and Fitzgerald Henne & Associates, Inc.

A. Proposed Gilbert and West Town Intercounty Drain Drainage District Boundary Description:

Commencing at a point on the northerly boundary of the Grand River, said point being 554.38 feet West and 1633.25 feet South of the Center of Section 24, Windsor Township, Town 3 North, Range 3 West, Eaton County, Michigan, said point also being the lower terminus of the Gilbert and West Town Intercounty Drain and the Point of Beginning of this description; thence Northeasterly 906 feet more or less to a point, said point being 246.22 feet East and 1209.35 feet South of the Center of said Section 24; thence Northeasterly 1499 feet more or less to a point, said point being 1343.90 feet East and 188.66 feet South of the Center of said Section 24; thence due North 409.00 feet; thence Northeasterly 1144 feet more or less to a point, said point being 2401.86 feet East and 654.79 feet North of the Center of said Section 24; thence due East 261 feet more or less to a point on the centerline of Waverly Road, said point also being on the county line between Ingham and Eaton Counties lying 647.24 feet North from the West 1/4 Corner of Section 19, Delhi Township, Town 3 North, Range 2 West, Ingham County, Michigan; thence Southeasterly 677 feet more or less to a point on the East-West 1/4 Line of Section 19, said point being 199.51 feet East from the West 1/4 Corner of said Section 19; thence due South 925.00 feet; thence Southwesterly 605 feet more or less to a point on the centerline of Waverly Road, said point also being on the county line between Ingham and Eaton Counties lying 1498.56 feet South from the West 1/4 Corner of said Section 19; thence South 227.40 feet following the centerline of Waverly Road along the West Line of said Section 19; thence due East 781.00 feet; thence Southeasterly 688 feet more or less to a point, said point being 1436.54 feet East and 1957.32 feet South of the West 1/4 Corner of said Section 19; thence due East 500.00 feet; thence due North 807.00 feet; thence Northeasterly 1475 feet more or less to a point, said point being the Center of said Section 19; thence Northeasterly 1980 feet more or less to a point, said point being 1318.09 feet East and 1478.03 feet North of the Center of said Section 19; thence Southeasterly 598 feet more or less to a point, said point being 824.81 feet West and 1147.81 feet North of the East 1/4 Corner of said Section 19; thence due South 330.00 feet; thence Southeasterly 488 feet more or less to a point, said point being 500.60 feet West and 453.07 feet North of the East 1/4 Corner of said Section 19; thence due East 247.50 feet; thence due North 693.00 feet; thence Northeasterly 489 feet more or less to a point on the centerline of Grovenburg Road, said point also being on the East Line of Section 19 lying 1567.49 feet North from the East 1/4 Corner of said Section 19; thence Southeasterly 1602 feet more or less to a point, said point being 1320.00 feet East and 665.16 feet North of the West 1/4 Corner

of Section 20, Delhi Township, Town 3 North, Range 2 West, Ingham County, Michigan; thence due South 330.00 feet; thence Southeasterly 473 feet more or less to a point on the centerline of Krantz Road, said point also being on the East-West 1/4 Line of Section 20 lying 989.99 feet West from the Center of said Section 20; thence Northeasterly 828 feet more or less to a point, said point being 495.00 feet West and 660.00 feet North of the Center of said Section 20; thence Northeasterly 1395 feet more or less to a point on the centerline of Kahres Road, said point also being on the North-South 1/4 Line of Section 20 lying 1966.83 feet North from the Center of said Section 20; thence North 660 feet more or less following the centerline of Kahres Road along the North-South 1/4 Line of Section 20 to the North 1/4 Corner of said Section 20, said North 1/4 Corner being on the centerline of Holt Road; thence East 330.00 feet following the centerline of Holt Road along the North Line of said Section 20; thence Northeasterly 1062 feet more or less to a point, said point being 821.64 feet East and 949.89 feet North of the South 1/4 Corner of Section 17, Delhi Township, Town 3 North, Range 2 West, Ingham County, Michigan; thence due East 495 feet more or less to a point on the centerline of Washington Road, said point being 1316.64 feet East and 949.52 feet North of the South 1/4 Corner of said Section 17; thence Northerly 2642 feet more or less following the centerline of Washington Road; thence Northeasterly 366 feet more or less along a curve to the right following the centerline of Washington Road; thence Northeasterly 417 feet more or less to a point, said point being 756.19 feet West and 1367.65 feet North of the East 1/4 Corner of said Section 17; thence due East 267.00 feet; thence Northeasterly 611 feet more or less to a point, said point being 123.30 feet West and 788.87 feet South of the Northeast Corner of said Section 17; thence Easterly 126 feet more or less to a point on the East Line of Section 17, said point being 789.53 feet South from the Northeast Corner of said Section 17; thence North 789.53 feet along the East Line of Section 17 to a point on the North Line of Section 17, said point being the Southeast Corner of Section 8, Delhi Township, Town 3 North, Range 3 West, Ingham County, Michigan; thence West 789.33 feet along the South Line of said Section 8; thence Northerly 652 feet more or less to a point, said point being 792.37 feet West and 650.84 feet North of the Southeast Corner of said Section 8; thence due West 528 feet more or less to a point, said point being 1320.29 feet East and 655.86 feet North of the South 1/4 Corner of said Section 8; thence Northwesterly 1237 feet more or less to a point, said point being 99.26 feet East and 854.72 feet North of the South 1/4 Corner of said Section 8; thence due North 900.00 feet; thence Northeasterly 333 feet more or less to a point, said point being 341.61 feet East and 658.52 feet South of the Center of said Section 8; thence due North 649 feet more or less to a point on the centerline of East Interstate-96; thence Northwesterly 2352 feet more or less following the centerline on East Interstate-96 to a point, said point being 1955.56 feet West and 496.80 feet North of the Center of said Section 8; thence Northwesterly 585 feet more or less to a point on the Southerly Right of Way Line of Georgetown Boulevard, said point being 368.78 feet East and 987.75 feet North of the West 1/4 Corner of said Section 8; thence due North 400.00 feet; thence Northeasterly 337 feet more or less to a point, said point being 643.67 feet East and 1582.89 feet North of the Center of said Section 8; thence due North 2596 feet more or less to a point on the Southerly Right of Way Line of Superior Street, said point being 644.70 feet East and 1101.95 feet South of the West 1/4 Corner of Section 5, Delhi

Township, Town 3 North, Range 2 West, City of Lansing, Ingham County, Michigan; thence Northeasterly 338 feet more or less following the Southerly Right of Way Line of Superior Street extended to a point on the Easterly Right of Way Line of Selfridge Boulevard; thence due North 371 feet more or less to a point on the Northerly Right of Way Line of Valencia Boulevard; thence Northeasterly 249 feet more or less to a point, said point being 1072.60 feet East and 328.72 feet South of the West 1/4 Corner of said Section 5; thence due North 1292.00 feet; thence Northeasterly 370 feet more or less to a point, said point being 1430.49 feet East and 1056.94 feet North of the West 1/4 Corner of said Section 5; thence due North 1370 feet more or less to the North Right of Way Line of Jolly Road; thence Westerly 573 feet more or less following the North Right of Way Line of Jolly Road to a point, said point being 836.63 feet East and 42.51 feet North of the Northwest Corner of said Section 5; thence due North 1005.00 feet; thence due West 730.00 feet; thence due North 710.00 feet; thence due West 180.00 feet; thence due South 392 feet more or less to a point on the North Right of Way Line of Reo Road, said point being 73.38 feet West and 1365.84 feet North of the Northwest Corner of said Section 5; thence Southwesterly 629 feet more or less to a point, said point being 247.36 feet West and 761.75 feet North of the Northeast Corner of Section 6, Delhi Township, Town 3 North, Range 2 West, City of Lansing, Ingham County, Michigan; thence Southwesterly 571 feet more or less to a point, said point being 641.40 feet West and 348.73 feet North of the Northeast Corner of said Section 6; thence due West 650.00 feet; thence Southwesterly 540 feet more or less to a point on the centerline of Jolly Road, said point also being on the North Line of Section 6 lying 917.46 feet East from the North 1/4 Corner of said Section 6; thence West 544.00 feet following the centerline of Jolly Road along the North Line of said Section 6; thence Southwesterly 514 feet more or less to a point on the centerline of Midwood Street, said point being 58.09 feet East and 398.85 feet South of the North 1/4 Corner of said Section 6; thence due South 677.00 feet; thence due West 786.00 feet; thence due North 133.00 feet; thence due West 715.00 feet; thence due North 425.00 feet; thence due West 778.00 feet; thence Southwesterly 817 feet more or less to a point on the centerline of Waverly Road, said point also being on the county line between Ingham and Eaton Counties lying 1458.06 feet North from the West 1/4 Corner of said Section 6; thence South 3057.32 feet following the centerline of Waverly Road along the West Line of said Section 6; thence due West 143.00 feet; thence due South 986.00 feet; thence due West 495.00 feet; thence due South 2667 feet more or less to a point on the centerline of Bishop Highway, said point also being on the East-West 1/4 Line of Section 12, Windsor Township, Town 3 North, Range 3 West, Eaton County, Michigan, lying 641.72 feet West from the East 1/4 Corner of said Section 12; thence East 148.81 feet following the centerline of Bishop Highway along the East-West 1/4 line of said Section 12; thence due South 1485.00 feet; thence due East 495 feet more or less to a point on the centerline of Waverly Road, said point being on the county line between Ingham and Eaton Counties lying 1485.13 feet South from the East 1/4 Corner of said Section 12; thence South 800 feet more or less following the centerline of Waverly Road along the East Line of Section 12 to a point lying 346.14 feet North from the Southeast Corner of said Section 12; thence due West 495.00 feet; thence due South 352 feet more or less to a point on the South Line of said Section 12; thence West 248.26 feet along the South Line of Section 12 to a point, said point being 737.86 feet West from

the Southeast Corner of said Section 12; thence Northwesterly 1436 feet more or less to a point, said point being 583.00 feet North and 582.00 feet East of the South 1/4 Corner of said Section 12; thence due West 551.00; thence Southwesterly 486 feet more or less to a point, said point being 315.00 feet West and 233.00 feet North of the South 1/4 Corner of said Section 12; thence Northwesterly 653 feet more or less to a point, said point being 809.00 feet North and 623.00 feet West of the South 1/4 Corner of said Section 12; thence due West 703.00 feet; thence Southwesterly 832 feet more or less to a point, said point being 523.00 feet North and 508.00 feet East of the Southwest Corner of said Section 12; thence due South 657.00 feet; thence Southwesterly 1125 feet more or less to a point on the West Line of Section 13, Windsor Township, Town 3 North, Range 3 West, Eaton County, Michigan, said point being 1129.00 feet South from the Northwest Corner of said Section 13; thence South 2079.00 feet along the West Line of Section 13; thence Southwesterly 960 feet more or less to a point, said point being 1303.00 feet North and 568.00 feet West of the Southeast Corner of Section 14, Windsor Township, Town 3 North, Range 3 West, Eaton County, Michigan; thence due South 546.00 feet; thence Southwesterly 1015 feet more or less to a point on the centerline of Holt Road, said point also being on the South Line of Section 14, lying 1226.04 feet West from the Southeast Corner of said Section 14; thence East 1267.00 feet following the centerline of Holt Road along the South Line of said Section 14 to a point lying 44.41 feet East from the Northwest Corner of Section 24, Windsor Township, Town 3 North, Range 3 West, Eaton County, Michigan; thence due South 1274.75 feet; thence due East 619.55 feet; thence due South 1379.00 feet; thence due East 600.00 feet; thence Southeasterly 584 feet more or less to a point, said point being 882.91 feet West and 330.14 feet South of the Center of said Section 24; thence Southwesterly 622 feet more or less to a point, said point being 1116.72 feet West and 905.83 feet South of the Center of said Section 24; thence Southeasterly 919 feet more or less to the Point of Beginning of this description.

B. Gilbert and West Town Drain Proposed Route and Course Description:

Beginning at the Grand River at a point 1665.00 feet South and 530.00 feet West from the center of section 24, T3N, R3W, Windsor Township, Eaton County, Michigan, thence N 21°30' E 537.00 feet, thence N 34°25' E 126.00 feet, thence N 59°30' E 139.00 feet, thence N 45°15' E 143.00 feet, thence N 81°10' E 46.00 feet more or less to a point on the North-South 1/4 line of said Section 24 said point lying 877.00 feet South from the center of said Section 24, thence continuing N 81°10' E 144.00 feet, thence N 01°40' E 218.00 feet, thence N 13° W 146.00 feet, thence N 38°05' E 216.00 feet, thence N 29°50' E 146.00 feet, thence N 42°35' E 141.00 feet, thence N 31°35' E 113.00 feet more or less to a point on the East-West 1/4 line of said Section 24 said point lying 470.00 feet East from the center of said Section 24, thence N 47° E 468.00 feet, thence N 22°25' E 490.00 feet, thence N 08°35' E 310.00 feet, thence N 20°40' E 295.00 feet, thence N 55°55' E 171.00 feet, thence N 76°55' E 392.00 feet, thence N 64°55' E 374.00 feet, thence N 53°20' E 330.00 feet, thence N 38°15' E 270.00 feet thence N 31°20' E 173.00 feet, thence N 17°30' E 154.00 feet, thence N 33°48'30" E 34.36 feet, thence N 52°46'32" E 58.54 feet more or less to a point on the East line of said Section 24 said point lying 195.50 feet South from the Northwest corner of said Section 24, thence continuing N 52°46'32" E 51.96 feet, thence N 44°13'18" E 172.16 feet, thence N 43°50'39" E 55.08 feet more or less to a point on the South line of Section 18, T3N, R2W, Delhi Township, Ingham County, Michigan said point lying 200.30 feet East from the Southwest corner of said Section 18, thence continuing N 43°50'39" E 39.25 feet, thence N 56°41'56" E 101.51 feet, thence N 55°57'28" E 84.57 feet, thence N 57°01'40" E 51.10 feet, thence N 30°46'52" E 34.96 feet, thence N 10°02' E 59.00 feet, thence N 10°08' W 432.00 feet, thence N 00°19' E 391.00 feet, thence N 29°38' E 2773.00 feet, thence N 46°59' E 1497.00 feet more or less to a point on the North-South 1/4 line of said Section 18, said point lying 772.00 feet southerly from the north one-quarter corner of said section 18, thence continuing N 46°59' E 47.00 feet, thence N 27°46' E 233.00 feet, thence N 11°30' E 538.00 feet, thence N 27°38' E 4.00 feet more or less to a point on the North line of said Section 18 said point lying 272.00 feet East from the North 1/4 corner of said Section 18, thence continuing N 27°38' E 182.00 feet, thence N 19°10' E 269.00 feet, thence N 24°41' E 313.00 feet, thence N 01°44' E 139.00 feet, thence N 13°01' E 119.00 feet, thence N 30°43' E 323.00 feet, thence N 18°33' W 363.00 feet, thence N 07°22' W 53.00 feet, thence N 04°15' E 57.00 feet, thence N 10°19' E 89.00 feet, thence N 28°25' E 316.00 feet, thence N 18°31' E 596.00 feet more or less to a point on the East-West 1/4 line of Section 07 said Delhi Township, said point lying 891.00 feet East from the center of said Section 07, thence continuing N 18°31' E 301.00 feet, thence N 64°34' E 260.00 feet, thence N 36°36' E 60.00 feet, thence N 02°38' E 403.00 feet, thence N 10°56' E 425.00 feet, thence N 62°16' W 67.00 feet, thence N 45°48' W 267.00 feet, thence N 04°16' E 112.00 feet, thence N 01°49' W 169.00 feet, thence N 89°45' W 417.00 feet, thence N 48°30' W 40.00 feet, thence N 02°09' E 580.00 feet to the point of ending.

APPENDIX A

**Petition for consolidation, maintenance and improvement of the Gilbert
Intercounty Drain and the West Town Intercounty Drain from Delhi Charter
Township**



DELHI CHARTER TOWNSHIP

2074 AURELIUS ROAD
PHONE: (517) 694-2136

HOLT, MICHIGAN 48842-6320
FAX: (517) 694-1289

May 7, 2003

RECEIVED

MAY 08 2003

INGHAM CTY. DRAIN COMMISSIONER

Mr. Patrick Lindemann
Ingham County Drain Commissioner
P.O. Box 220
707 Buhl Street
Mason, MI 48854

Re: Consolidation of Drainage Districts

Dear Mr. Lindemann:

The Delhi Township Board approved the following items at their regularly scheduled meeting on May 6, 2003:

1. Resolution No. 2003-036 authorizing Delhi Township to petition the Ingham County Drain Commissioner for the consolidation, maintenance and improvement of fifteen (15) intracounty drains into one drainage district known as the Delhi Township Consolidated Drain and Branches Drainage District and to authorize the Supervisor and Clerk to sign the petition for said drain consolidation.
2. Resolution No. 2003-037 authorizing Delhi Township to petition the Ingham County Drain Commissioner for the consolidation, maintenance and improvement of the Gilbert Intercounty Drain and the West Town Drain into one drainage district known as the Gilbert Intercounty Drain Drainage District and to authorize the Supervisor and Clerk to sign the petition for said drain consolidation.

Copies of the resolutions and accompanying petitions are enclosed herewith.

If you have any questions or need further assistance in these matters, please feel free to call me.

Sincerely,

Robert F. Scheuerman, P.E.
Township Engineer

Enclosures

cc: John Elsinga, Delhi Township Manager

COPY

RESOLUTION NO. 2003-036

TOWNSHIP OF DELHI
RESOLUTION TO FILE COUNTY DRAIN PETITION

At a Regular meeting of the Township Board of Trustees of the Charter Township of Delhi, County of Ingham, State of Michigan, held in said Township on the 6th day of May, 2003, at 7:00 o'clock, p. m.

PRESENT: Supervisor Stuart Goodrich, Clerk Evan Hope, Trustees Steve Anderson, Marsha Bowers, Paul Krepps, Roy Sweet

ABSENT: Treasurer Harry Ammon

The following resolution was offered by Anderson and seconded by Bowers

WHEREAS, the drains listed within this Resolution are established drains located within Charter Township of Delhi, which share a common outlet; and

WHEREAS, maintenance and improvement is necessary for the drains listed below and in order to better maintain and operate these drains, and in turn better manage related activities such as cleaning out, relocating, widening, deepening, or straightening of the drains or adding branches, it is in the best interest and necessary for the public health of the Charter Township of Delhi and the property owners within the respective Drainage Districts that the Drains be maintained, improved and the Districts consolidated:

- Gilbert Drain (formerly a portion of the Gilbert Intercounty Drain)
- Gilbert Glens Branch Drain Drainage District
- Lanier Branch Drain Drainage District
- Gilbert, Grovenburg Woods Branch Drain Drainage District
- Cardinal Estates Branch Drain Drainage District
- Willoughby Woods Branch Drain Drainage District
- Loch Woode Estates Branch Drain Drainage District
- Melkvik Drain Drainage District
- Gilbert, Chisholm Hills Branch Drain Drainage District
- Gilbert, Horstmeyer Estates Branch Drain Drainage District
- Gilbert, Houghton Hollow Branch Drain Drainage District
- Gilbert, Houghton Heights Branch Drain Drainage District
- North Branch Gilbert Drain Drainage District
- Gilbert Town Drain Drainage District
- Melkvik, Grovenburg Farms Branch Drain Drainage District

COPY

RESOLUTION NO. 2003-037

**TOWNSHIP OF DELHI
RESOLUTION TO FILE INTERCOUNTY DRAIN PETITION**

At a Regular meeting of the Township Board of Trustees of the Charter Township of Delhi, County of Ingham, State of Michigan, held in said Township on the 6th day of May, 2003, at 7:00 o'clock, p. m.

PRESENT: Supervisor Stuart Goodrich, Clerk Evan Hope, Trustees Steve Anderson, Marsha Bowers, Paul Krepps, Roy Sweet

ABSENT: Treasurer Harry Ammon

The following resolution was offered by Krepps and seconded by Bowers

WHEREAS, the West Town Intercounty Drain outlets into the Gilbert Intercounty Drain, and the West Town Intercounty Drain Drainage District is comprised of lands completely within the Gilbert Intercounty Drain; and

WHEREAS, maintenance and improvement of these drains is necessary for the public health of the Township and in order to better maintain and operate these drains, and in turn better manage related activities such as cleaning out, relocating, widening, deepening, or straightening the drains or adding branches, it is in the best interest of the Charter Township of Delhi and the property owners within the respective Drainage Districts that the Drains and the Drainage Districts be consolidated; and

WHEREAS, the Charter Township of Delhi recognizes that it is necessary for the public health to consolidate, maintain, and improve the Gilbert Intercounty Drain and the West Town Intercounty Drain within the Counties of Ingham and Eaton, pursuant to the Drain Code, Public Act 40 of 1956, as amended, being MCL 280.1 *et seq.*, with the consolidated drain to be known as the Gilbert Intercounty Drain and the consolidated drainage district to be known as the Gilbert Intercounty Drain Drainage District; and

WHEREAS, a portion of the lands to be benefited by the consolidated Gilbert Intercounty Drain are located within the Charter Township of Delhi, in the County of Ingham, State of Michigan;

WHEREAS, the Charter Township of Delhi recognizes that it will be subject to assessment to pay for a percentage of the costs of consolidating, maintaining, and improving the Drains;

**PETITION FOR THE MAINTENANCE, IMPROVEMENT AND
CONSOLIDATION OF COUNTY DRAINAGE DISTRICTS AND FOR THE
ADDING OF LANDS TO THE CONSOLIDATED DRAINAGE DISTRICT
PURSUANT TO ACT 40 OF THE PUBLIC ACTS OF 1956, AS AMENDED**

To the County Drain Commissioner for the County of Ingham:

Petitioner, pursuant to Chapter 8 of the Drain Code, Act 40 of the Public Acts of 1956, as amended, hereby petitions for the cleaning out, relocating, widening, deepening, straightening, tiling, adding branches, extending, or relocating along a highway and the maintenance, and improvement of the drains listed below and the consolidation of these drains and their respective drainage districts listed below to be known and designated as the Delhi Township Consolidated Drain and Branches and the consolidation of the drainage districts to be known as the Delhi Township Consolidated Drain and Branches Drainage District and for the adding of lands to the consolidated Delhi Township Consolidated Drain and Branches Drainage District:

- Gilbert County Drain (formerly a portion of the Gilbert Intercounty Drain)
- Gilbert Glens Branch Drain Drainage District
- Lanier Branch Drain Drainage District
- Gilbert, Grovenburg Woods Branch Drain Drainage District
- Cardinal Estates Branch Drain Drainage District
- Willoughby Woods Branch Drain Drainage District
- Loch Woode Estates Branch Drain Drainage District
- Melkvik Drain Drainage District
- Gilbert, Chisholm Hills Branch Drain Drainage District
- Gilbert, Horstmeyer Estates Branch Drain Drainage District
- Gilbert, Houghton Hollow Branch Drain Drainage District
- Gilbert, Houghton Heights Branch Drain Drainage District
- North Branch Gilbert Drain Drainage District
- Gilbert Town Drain Drainage District
- Melkvik, Grovenburg Farms Branch Drain Drainage District

These drains and their respective drainage districts are each located within the Township of Delhi, County of Ingham, State of Michigan. A map is attached showing the proposed consolidated drain and the proposed consolidated and enlarged drainage district.

Petitioner makes this petition for consolidation, maintenance, and improvement and for the

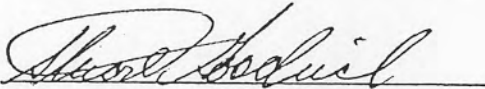
addition of lands to the drainage district as necessary for the public health of the Township and in order to better maintain and operate the consolidated drainage district, and in turn better manage related activities such as cleaning out, maintaining and improving the drains which serve the lands in the proposed consolidated drainage district.

Petitioner is a charter township and this petition has been authorized by its governing body, as evidenced by the attached resolution. The petitioner is a municipality which will be liable to assessments at large for at least a percentage of the total amount to be assessed for the cost of consolidating, maintaining, and improving the drains.

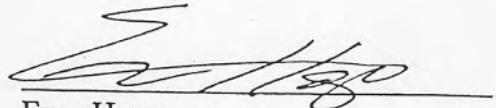
Petitioner declares that the proposed consolidation, maintenance, and improvement of drains and drainage districts and for the addition of lands to the consolidated drainage district is necessary for the public health of the Township and is necessary and conducive to the public health, convenience, or welfare.

DATED this 7 day of MAY, 2003.

CHARTER TOWNSHIP OF DELHI



By: Stuart Goodrich
Its: Supervisor



Evan Hope
Clerk

As authorized by its governing body on:

May 6, 2003

**PETITION FOR THE MAINTENANCE, IMPROVEMENT
AND CONSOLIDATION OF THE GILBERT INTERCOUNTY DRAIN
AND THE WEST TOWN INTERCOUNTY DRAIN AND FOR THE ADDING OF LANDS
TO THE CONSOLIDATED DRAINAGE DISTRICT PURSUANT TO
ACT 40 OF THE PUBLIC ACTS OF 1956, AS AMENDED**

**TO THE DIRECTOR OF THE DEPARTMENT OF AGRICULTURE AND THE
DRAINAGE BOARDS FOR THE WEST TOWN INTERCOUNTY DRAIN DRAINAGE
DISTRICT AND THE GILBERT INTERCOUNTY DRAIN DRAINAGE DISTRICT:**

Petitioner, pursuant to the Drain Code, Act 40 of the Public Acts of 1956, as amended, hereby petitions for the cleaning out, relocating, widening, deepening, straightening, tiling, extending, adding branches, or relocating along a highway and the consolidation, maintenance, and improvement of the intercounty drains designated as the Gilbert Intercounty Drain and the West Town Intercounty Drain into a single intercounty drain known as the Gilbert Intercounty Drain and a single intercounty drainage district known as the Gilbert Intercounty Drain Drainage District, located and established in Ingham and Eaton Counties and for the adding of lands to the consolidated Gilbert Intercounty Drain Drainage District. A map is attached showing the proposed consolidated drain and the proposed consolidated and enlarged drainage district.

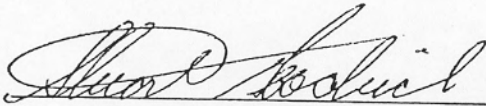
Your petitioner further shows that the said drains need cleaning out, relocating, widening, deepening, straightening, extending, tiling, interconnecting or otherwise improving, or adding branches and consolidation as necessary for the public health and are located in the Counties of Ingham and Eaton, State of Michigan. Petitioner makes this petition for consolidation, maintenance, and improvement and the addition of lands to the drainage district in order to better maintain and operate the consolidated drainage district, and in turn better manage related activities such as cleaning out, relocating, widening, deepening, or straightening the drains.

Petitioner is a charter township and this petition has been authorized by its governing body, as evidenced by the attached resolution. The petitioner is a municipality which will be liable to assessments at large for at least a percentage of the total amount to be assessed for the cost of consolidating, maintaining, and improving the drains.

Petitioner declares that the proposed consolidation, maintenance, and improvement of drains and drainage districts is necessary for the public health and is necessary and conducive to the public health, convenience or welfare.

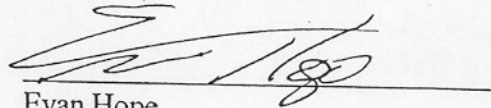
DATED this 7 day of MAY, 2003.

CHARTER TOWNSHIP OF DELHI



By: Stuart Goodrich

Its: Supervisor



Evan Hope

Clerk

As authorized by its governing body on:

May 6, 2003

F:\Data\Client A-M\Gilbert ICD - 7247.0001\petition.GICD and West Town.2.17.03.doc

APPENDIX B

Determination of Practicability

STATE OF MICHIGAN

DEPARTMENT OF AGRICULTURE
Environmental Stewardship Division

Order of Practicability and Consolidation of Proposed Drain

(In accordance with P.A. 40, of 1956, as amended)

GILBERT INTERCOUNTY DRAIN

Whereas, a petition in writing, bearing date of May 6, 2003, was made and filed with Mr. Patrick Lindemann, Ingham County Drain Commissioner, State of Michigan, praying for the cleaning out, relocating, widening, deepening, straightening, tiling, extending, adding branches, or relocating along a highway and the consolidation, maintenance, and improvement of the intercounty drains known as the Gilbert Intercounty Drain and the West Town Intercounty Drain into a single intercounty drainage district known as the Gilbert Intercounty Drain Drainage District, located and established in Ingham and Eaton Counties and for the adding of lands to the consolidated Gilbert Intercounty Drain Drainage District, therein described as follows:

Commencing at a point on the northerly boundary of the Grand River, said point being 554.38 feet West and 1633.25 feet South of the Center of Section 24, Windsor Township, Town 3 North, Range 3 West, Eaton County, Michigan, said point also being the lower terminus of the Gilbert and West Town Intercounty Drain and the Point of Beginning of this description; thence Northeasterly 906 feet more or less to a point, said point being 246.22 feet East and 1209.35 feet South of the Center of said Section 24; thence Northeasterly 1499 feet more or less to a point, said point being 1343.90 feet East and 188.66 feet South of the Center of said Section 24; thence due North 409.00 feet; thence Northeasterly 1144 feet more or less to a point, said point being 2401.86 feet East and 654.79 feet North of the Center of said Section 24; thence due East 261 feet more or less to a point on the centerline of Waverly Road, said point also being on the county line between Ingham and Eaton Counties lying 647.24 feet North from the West 1/4 Corner of Section 19, Delhi Township, Town 3 North, Range 2 West, Ingham County, Michigan; thence Southeasterly 677 feet more or less to a point on the East-West 1/4 Line of Section 19, said point being 199.51 feet East from the West 1/4 Corner of said Section 19; thence due South 925.00 feet; thence Southwesterly 605 feet more or less to a point on the centerline of Waverly Road, said point also being on the county line between Ingham and Eaton Counties lying 1498.56 feet South from the West 1/4 Corner of said Section 19; thence South 227.40 feet following the centerline of Waverly Road along the

- West Line of said Section 19; thence due East 781.00 feet; thence Southeasterly 688 feet more or less to a point, said point being 1436.54 feet East and 1957.32 feet South of the West 1/4 Corner of said Section 19; thence due East 500.00 feet; thence due North 807.00 feet; thence Northeasterly 1475 feet more or less to a point, said point being the Center of said Section 19; thence Northeasterly 1980 feet more or less to a point, said point being 1318.09 feet East and

1478.03 feet North of the Center of said Section 19; thence Southeasterly 598 feet more or less to a point, said point being 824.81 feet West and 1147.81 feet North of the East 1/4 Corner of said Section 19; thence due South 330.00 feet; thence Southeasterly 488 feet more or less to a point, said point being 500.60 feet West and 453.07 feet North of the East 1/4 Corner of said Section 19; thence due East 247.50 feet; thence due North 693.00 feet; thence Northeasterly 489 feet more or less to a point on the centerline of Grovenburg Road, said point also being on the East Line of Section 19 lying 1567.49 feet North from the East 1/4 Corner of said Section 19; thence Southeasterly 1602 feet more or less to a point, said point being 1320.00 feet East and 665.16 feet North of the West 1/4 Corner of Section 20, Delhi Township, Town 3 North, Range 2 West, Ingham County, Michigan; thence due South 330.00 feet; thence Southeasterly 473 feet more or less to a point on the centerline of Krantz Road, said point also being on the East-West 1/4 Line of Section 20 lying 989.99 feet West from the Center of said Section 20; thence Northeasterly 828 feet more or less to a point, said point being 495.00 feet West and 660.00 feet North of the Center of said Section 20; thence Northeasterly 1395 feet more or less to a point on the centerline of Kahres Road, said point also being on the North-South 1/4 Line of Section 20 lying 1966.83 feet North from the Center of said Section 20; thence North 660 feet more or less following the centerline of Kahres Road along the North-South 1/4 Line of Section 20 to the North 1/4 Corner of said Section 20, said North 1/4 Corner being on the centerline of Holt Road; thence East 330.00 feet following the centerline of Holt Road along the North Line of said Section 20; thence Northeasterly 1062 feet more or less to a point, said point being 821.64 feet East and 949.89 feet North of the South 1/4 Corner of Section 17, Delhi Township, Town 3 North, Range 2 West, Ingham County, Michigan; thence due East 495 feet more or less to a point on the centerline of Washington Road, said point being 1316.64 feet East and 949.52 feet North of the South 1/4 Corner of said Section 17; thence Northerly 2642 feet more or less following the centerline of Washington Road; thence Northeasterly 366 feet more or less along a curve to the right following the centerline of Washington Road; thence Northeasterly 417 feet more or less to a point, said point being 756.19 feet West and 1367.65 feet North of the East 1/4 Corner of said Section 17; thence due East 267.00 feet; thence Northeasterly 611 feet more or less to a point, said point being 123.30 feet West and 788.87 feet South of the Northeast Corner of said Section 17; thence Easterly 126 feet more or less to a point on the East Line of Section 17, said point being 789.53 feet South from the Northeast Corner of said Section 17; thence North 789.53 feet along the East Line of Section 17 to a point on the North Line of Section 17, said point being the Southeast Corner of Section 8, Delhi Township, Town 3 North, Range 3 West, Ingham County, Michigan; thence West 789.33 feet along the South Line of said Section 8; thence Northerly 652 feet more or less to a point, said point being 792.37 feet West and 650.84 feet North of the Southeast Corner of said Section 8; thence due West 528 feet more or less to a point, said point being 1320.29 feet East and 655.86 feet North of the South 1/4 Corner of said Section 8; thence Northwesterly 1237 feet more or less to a point, said point being 99.26 feet East

and 854.72 feet North of the South 1/4 Corner of said Section 8; thence due North 900.00 feet; thence Northeasterly 333 feet more or less to a point, said point being 341.61 feet East and 658.52 feet South of the Center of said Section 8; thence due North 649 feet more or less to a point on the centerline of East Interstate-96; thence Northwesterly 2352 feet more or less following the centerline on East Interstate-96 to a point, said point being 1955.56 feet West and 496.80 feet North of the Center of said Section 8; thence Northwesterly 585 feet more or less to a point on the Southerly Right of Way Line of Georgetown Boulevard, said point being 368.78 feet East and 987.75 feet North of the West 1/4 Corner of said Section 8; thence due North 400.00 feet; thence Northeasterly 337 feet more or less to a point, said point being 643.67 feet East and 1582.89 feet North of the Center of said Section 8; thence due North 2596 feet more or less to a point on the Southerly Right of Way Line of Superior Street, said point being 644.70 feet East and 1101.95 feet South of the West 1/4 Corner of Section 5, Delhi Township, Town 3 North, Range 2 West, City of Lansing, Ingham County, Michigan; thence Northeasterly 338 feet more or less following the Southerly Right of Way Line of Superior Street extended to a point on the Easterly Right of Way Line of Selfridge Boulevard; thence due North 371 feet more or less to a point on the Northerly Right of Way Line of Valencia Boulevard; thence Northeasterly 249 feet more or less to a point, said point being 1072.60 feet East and 328.72 feet South of the West 1/4 Corner of said Section 5; thence due North 1292.00 feet; thence Northeasterly 370 feet more or less to a point, said point being 1430.49 feet East and 1056.94 feet North of the West 1/4 Corner of said Section 5; thence due North 1370 feet more or less to the North Right of Way Line of Jolly Road; thence Westerly 573 feet more or less following the North Right of Way Line of Jolly Road to a point, said point being 836.63 feet East and 42.51 feet North of the Northwest Corner of said Section 5; thence due North 1005.00 feet; thence due West 730.00 feet; thence due North 710.00 feet; thence due West 180.00 feet; thence due South 392 feet more or less to a point on the North Right of Way Line of Reo Road, said point being 73.38 feet West and 1365.84 feet North of the Northwest Corner of said Section 5; thence Southwesterly 629 feet more or less to a point, said point being 247.36 feet West and 761.75 feet North of the Northeast Corner of Section 6, Delhi Township, Town 3 North, Range 2 West, City of Lansing, Ingham County, Michigan; thence Southwesterly 571 feet more or less to a point, said point being 641.40 feet West and 348.73 feet North of the Northeast Corner of said Section 6; thence due West 650.00 feet; thence Southwesterly 540 feet more or less to a point on the centerline of Jolly Road, said point also being on the North Line of Section 6 lying 917.46 feet East from the North 1/4 Corner of said Section 6; thence West 544.00 feet following the centerline of Jolly Road along the North Line of said Section 6; thence Southwesterly 514 feet more or less to a point on the centerline of Midwood Street, said point being 58.09 feet East and 398.85 feet South of the North 1/4 Corner of said Section 6; thence due South 677.00 feet; thence due West 786.00 feet; thence due North 133.00 feet; thence due West 715.00 feet; thence due North 425.00 feet; thence due West 778.00 feet; thence Southwesterly 817 feet more or less to a point on the centerline of Waverly

Road, said point also being on the county line between Ingham and Eaton Counties lying 1458.06 feet North from the West 1/4 Corner of said Section 6; thence South 3057.32 feet following the centerline of Waverly Road along the West Line of said Section 6; thence due West 143.00 feet; thence due South 986.00 feet; thence due West 495.00 feet; thence due South 2667 feet more or less to a point on the centerline of Bishop Highway, said point also being on the East-West 1/4 Line of Section 12, Windsor Township, Town 3 North, Range 3 West, Eaton County, Michigan, lying 641.72 feet West from the East 1/4 Corner of said Section 12; thence East 148.81 feet following the centerline of Bishop Highway along the East-West 1/4 line of said Section 12; thence due South 1485.00 feet; thence due East 495 feet more or less to a point on the centerline of Waverly Road, said point being on the county line between Ingham and Eaton Counties lying 1485.13 feet South from the East 1/4 Corner of said Section 12; thence South 800 feet more or less following the centerline of Waverly Road along the East Line of Section 12 to a point lying 346.14 feet North from the Southeast Corner of said Section 12; thence due West 495.00 feet; thence due South 352 feet more or less to a point on the South Line of said Section 12; thence West 248.26 feet along the South Line of Section 12 to a point, said point being 737.86 feet West from the Southeast Corner of said Section 12; thence Northwesterly 1436 feet more or less to a point, said point being 583.00 feet North and 582.00 feet East of the South 1/4 Corner of said Section 12; thence due West 551.00; thence Southwesterly 486 feet more or less to a point, said point being 315.00 feet West and 233.00 feet North of the South 1/4 Corner of said Section 12; thence Northwesterly 653 feet more or less to a point, said point being 809.00 feet North and 623.00 feet West of the South 1/4 Corner of said Section 12; thence due West 703.00 feet; thence Southwesterly 832 feet more or less to a point, said point being 523.00 feet North and 508.00 feet East of the Southwest Corner of said Section 12; thence due South 657.00 feet; thence Southwesterly 1125 feet more or less to a point on the West Line of Section 13, Windsor Township, Town 3 North, Range 3 West, Eaton County, Michigan, said point being 1129.00 feet South from the Northwest Corner of said Section 13; thence South 2079.00 feet along the West Line of Section 13; thence Southwesterly 960 feet more or less to a point, said point being 1303.00 feet North and 568.00 feet West of the Southeast Corner of Section 14, Windsor Township, Town 3 North, Range 3 West, Eaton County, Michigan; thence due South 546.00 feet; thence Southwesterly 1015 feet more or less to a point on the centerline of Holt Road, said point also being on the South Line of Section 14, lying 1226.04 feet West from the Southeast Corner of said Section 14; thence East 1267.00 feet following the centerline of Holt Road along the South Line of said Section 14 to a point lying 44.41 feet East from the Northwest Corner of Section 24, Windsor Township, Town 3 North, Range 3 West, Eaton County, Michigan; thence due South 1274.75 feet; thence due East 619.55 feet; thence due South 1379.00 feet; thence due East 600.00 feet; thence Southeasterly 584 feet more or less to a point, said point being 882.91 feet West and 330.14 feet South of the Center of said Section 24; thence Southwesterly 622 feet more or less to a point, said point being 1116.72 feet West and 905.83 feet South of the

Center of said Section 24; thence Southeasterly 919 feet more or less to the Point of Beginning of this description.

Which said petition was signed by the Township Board of Trustees of Delhi Charter Township, liable to an assessment on said drain; and

Whereas, due notice of the filing of said petition and copy thereof was served upon Mr. Braden Harrington, Eaton County Drain Commissioner, and the Director of the Michigan Department of Agriculture by Mr. Patrick Lindemann, Ingham County Drain Commissioner; and

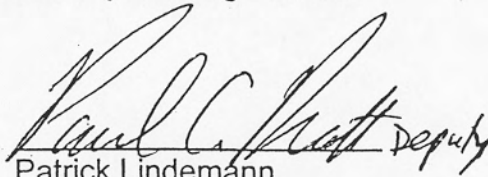
Whereas, we, the members of the Drainage Board of the Gilbert Intercounty Drain held a public meeting on October 28, 2003 at Delhi Charter Township Hall, 2074 N. Aurelius Road, in the city of Holt, Ingham County, State of Michigan, due notice thereof having been given according to the statute in such case made and provided, for the purpose of determining the practicability for said drain and whether the same is practical and conducive to the public health, convenience and welfare;

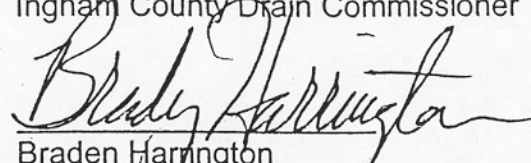
And the Drainage Board for the Gilbert Intercounty Drain at the public meeting organized as provided by statute, did proceed to a consideration and hearing of the question of practicability of said drain, and whether the same is practical and after due consideration, the said Board for the Gilbert Intercounty Drain by a majority vote taken as required by the statute in such case made and provided, did find said drain so proposed is ✓ practical.

Now therefore, we the members of the Drainage Board of the Gilbert Intercounty Drain by a majority vote thereof do hereby order and determine that said proposed drain is ✓ practical, and that said petition for the proposed drain is ✓ practical.

Given under our hands October 28, 2003.

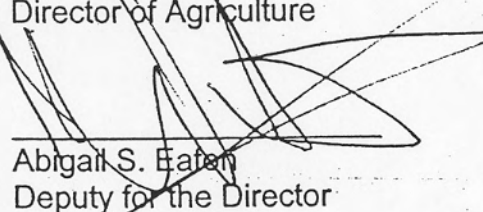
Members of the Gilbert Intercounty Drainage Board


Patrick Lindemann
Ingham County Drain Commissioner


Braden Harrington
Eaton County Drain Commissioner

Dan Wyant
Director of Agriculture

By:


Abigail S. Eaton
Deputy for the Director
P.O. Box 30017
Lansing, MI 48909
517-335-4497

APPENDIX C

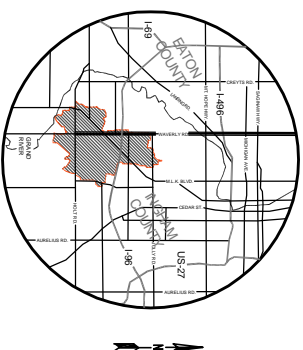
Gilbert and West Town Intercounty Drain Drainage District

GILBERT & WEST TOWN INTERCOUNTY DRAIN DRAINAGE DISTRICT

T3N, R3W, WINDSOR TOWNSHIP, EATON COUNTY AND T3N, R2W, DELHI TOWNSHIP, CITY OF LANSING, INGHAM COUNTY, MICHIGAN

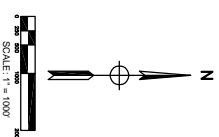
LOCATION MAP

NO SCALE



SHEET INDEX

- APPENDIX C - GILBERT & WEST TOWN INTERCOUNTY DRAIN DRAINAGE DISTRICT
 - APPENDIX D - PROPOSED DISTRICT MAP WITH ADJACENT & ENCLOSED DISTRICTS
 - APPENDIX E - QUARTER DISTRICT MAP
 - APPENDIX F - QUARTER DISTRICT MAP
 - APPENDIX G - QUARTER DISTRICT MAP
 - APPENDIX H - QUARTER DISTRICT MAP
 - APPENDIX I - GILBERT & WEST TOWN DRAIN ROUTE & COURSE EXHIBIT - SOUTHERLY PORTION
 - APPENDIX J - GILBERT & WEST TOWN DRAIN ROUTE & COURSE EXHIBIT - NORTHERLY PORTION
 - APPENDIX K - GILBERT & WEST TOWN DRAIN CONDITIONS & FLOW PROBLEMS EXHIBIT - STA 1+00 TO 62+00
 - APPENDIX L - GILBERT & WEST TOWN DRAIN CONDITIONS & FLOW PROBLEMS EXHIBIT - STA 62+00+00 TO 125+00
 - APPENDIX M - GILBERT & WEST TOWN DRAIN CONDITIONS & FLOW PROBLEMS EXHIBIT - STA 125+00 TO 182+00
 - APPENDIX N - CONFLICT MAP
- ### LEGEND
- PROPOSED - GILBERT & WEST TOWN INTERCOUNTY DRAIN DRAINAGE DISTRICT
 - CITY OF LANSING CORPORATE LIMITS
 - ROAD RIGHT OF WAY
 - PARCEL LINE
 - SECTION LINE OR QUARTER SECTION LINE
 - GILBERT AND WEST TOWN INTERCOUNTY DRAIN CENTERLINE
 - EXISTING DRAIN CENTERLINE
 - SECTION CORNER
 - SECTION NUMBER
- 20** GILBERT AND WEST TOWN INTERCOUNTY DRAIN DRAINAGE DISTRICT



GILBERT & WEST TOWN INTERCOUNTY DRAIN DRAINAGE DISTRICT
DELHI TOWNSHIP, CITY OF LANSING, INGHAM COUNTY & WINDSOR TOWNSHIP, EATON COUNTY, MICHIGAN

PROJECT NO.
02003

SHEET NO.
APPENDIX C

FITZGERALD HENNE & ASSOCIATES, INC.
environmental, engineering, surveying & landscape architecture services
4108 RD-10000 DELHI, MICHIGAN 48824-1000 TEL: 517-887-1100 FAX: 517-887-1100

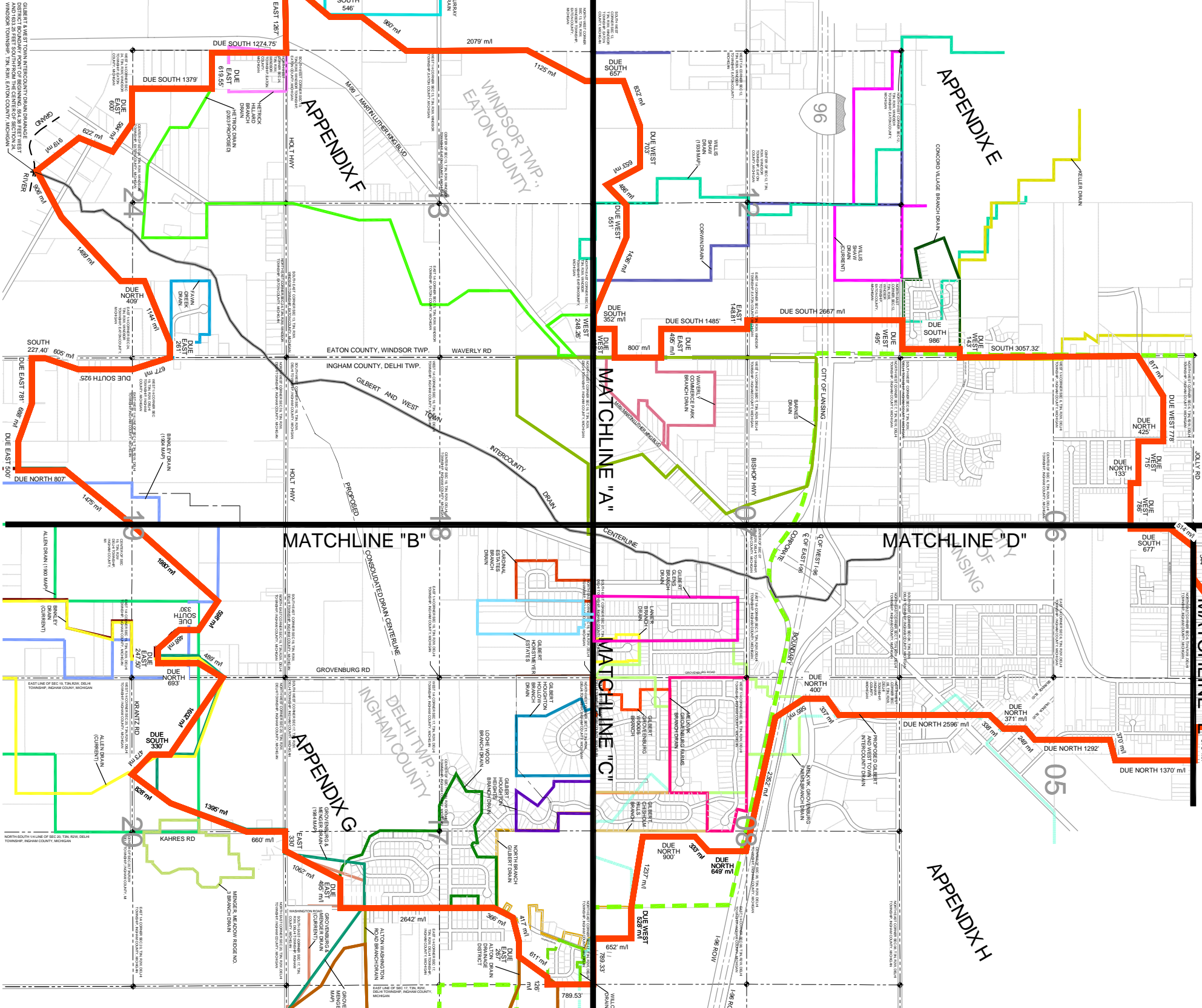
NO.		REVISIONS		BY	DATE	Drawn by
						REO
						Date
						05/11/04
						Approved
						Date
						05/11/04
						Site

REVISIONS IN ACCORDANCE WITH CONSTRUCTION RECORDS

APPENDIX D

District map with adjacent & enclosed districts

DRAIN DRAINAGE DISTRICT

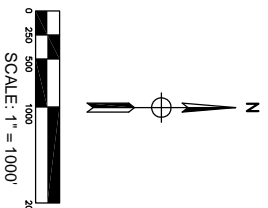
N, R2W, DELHI
CHIGAN

Proposed Gilbert & West Town Intercounty Drain Drainage District Description

[illegible]

LEGEND

- | | | |
|--|---|--|
| | CORONADO GILBERT AND WEST TOWN INTERCOUNTY DRAINAGE DISTRICT -
PROPOSED ESTATES BRANCH DRAINAGE DISTRICT - (Recorded Liber 1864 Page 85) | |
| | GILBERT CHISHOLM HILLS BRANCH DRAINAGE DISTRICT - (Current Drainage District Description) | |
| | GILBERT GLENVIEW WOODS BRANCH DRAINAGE DISTRICT - (Recorded Liber 1340 Page 495) | |
| | GILBERT GROVENBURG WOODS BRANCH DRAINAGE DISTRICT - (Recorded Liber 1844 Page 883) | |
| | GILBERT HOUGHTON HEIGHTS BRANCH DRAINAGE DISTRICT - (Current Drainage District Description) | |
| | GILBERT HOUGHTON HEIGHTS BRANCH DRAINAGE DISTRICT - (Current Drainage District Description) | |
| | GILBERT HOUGHTON HOLLOW BRANCH DRAINAGE DISTRICT - (Current Drainage District Description) | |
| | LAMIER RANCH DRAINAGE DISTRICT - (Recorded Liber 1628 Page 231) | |
| | "LOCH WOOD BRANCH DRAINAGE DISTRICT - (Recorded Liber 1873 Page 770) | |
| | MELUKU DRAINAGE DISTRICT - (Recorded Liber 1973 Page 448) | |
| | METLICK GROVENBURG FARM BRANCH DRAINAGE DISTRICT - (Recorded Liber 2889 Page 1140) | |
| | NORTH KANABE GILBERT DRAINAGE DISTRICT - (Recorded Liber 1910 Page 880) | |
| | WILLDOUBERHOODS BRANCH DRAINAGE DISTRICT - (Recorded Liber 1919 Page 386) | |
| | BARNES DEAN DRAINAGE DISTRICT - (1988 Drainage District Description) | |
| | WAVERLY COMMERCE PARK BRANCH DRAINAGE DISTRICT - (2000 Drainage District Description) | |
| | ALEEN DRAINAGE DISTRICT - (1990 Drainage District Description) | |
| | ALEEN DRAINAGE DISTRICT - (Current Drainage District Map) | |
| | ALTON DRAINAGE DISTRICT - (Current Drainage District Description) | |
| | ALTUN, WASHINGTON ROAD BRANCH DRAINAGE DISTRICT - (Current Drainage District Description) | |
| | BARKLEY DRAINAGE DISTRICT - (1904 Drainage District Description) | |
| | BARKLEY DRAINAGE DISTRICT - (Current Drainage District Map) | |
| | GROVENBURG & MENGER DRAINAGE DISTRICT - (1984 Drainage District Map) | |
| | GROVENBURG & MENGER DRAINAGE DISTRICT - (Current Drainage District Map) | |
| | MENER MEADOW ROSE NO. 3 BRANCH DRAINAGE DISTRICT - (Recorded Liber 2378 Page 70) | |
| | FAWN CREEK DRAINAGE DISTRICT - (Recorded Liber 84 Page 285) | |
| | HERRICK DRAINAGE DISTRICT - 2003 - (PROPOSED DISTRICT BOUNDARY) | |
| | HERRICK HILLARD BRANCH DRAINAGE DISTRICT - 1988 | |
| | CONCORD VILLAGE BRANCH DRAINAGE DISTRICT - (1979 Design Drawings) | |
| | CORWIN DRAINAGE DISTRICT - (1981 Drain Assessment Roll) | |
| | KELLER DRAINAGE DISTRICT - (1982 Drainage District Map) | |
| | MURRAY DRAINAGE DISTRICT - (1987 Drain Assessment Roll) | |
| | WILLIS SHAW DRAINAGE DISTRICT - (Current Drain Assessment Roll) | |
| | WILLIS SHAW DRAINAGE DISTRICT - (1938 Drainage District Map) | |
| | CITY OF LANSING CORPORATE LIMITS | |
| | ROAD RIGHT OF WAY | |
| | HIGHWAY RIGHT OF WAY | |
| | PARCEL LINE | |
| | SECTION LINE OR QUARTER SECTION LINE | |
| | GILBERT AND WEST TOWN INTERCOUNTY
DRAIN CENTERLINE | |
| | EXISTING DRAIN CENTERLINE | |



PROPOSED DISTRICT MAP WITH ADJACENT & ENCLOSED DISTRICTS

* Christown Hills Drain Drainage District includes No. 1, No. 2, No. 3, and No. 4, plats, even though all areas are not described at together to being within the district boundary (individually described as part of district boundary).

** = Loch Woode Drain Drainage District also includes lands added in: Liber 1993 Page 294 & Liber 2075 Page 908 (including Moorwood Farms plat).

NO.	REVISIONS	BY	DATE	Drawn By
				REO
				Date
				25/11/04
				Approved By
				Date
REVISED IN ACCORDANCE WITH CONSTRUCTION RECORDS		By	Date	

REVISÉ EN ACCORD AVEC LES DOSSIER DE CONSTRUCTION Par Date

**GILBERT & WEST TOWN INTERCOUNTY
DRAIN DRAINAGE DISTRICT**

DELHI TOWNSHIP, CITY OF LANSING, INGHAM COUNTY
& WINDSOR TOWNSHIP, EATON COUNTY, MICHIGAN

PROJECT NO.

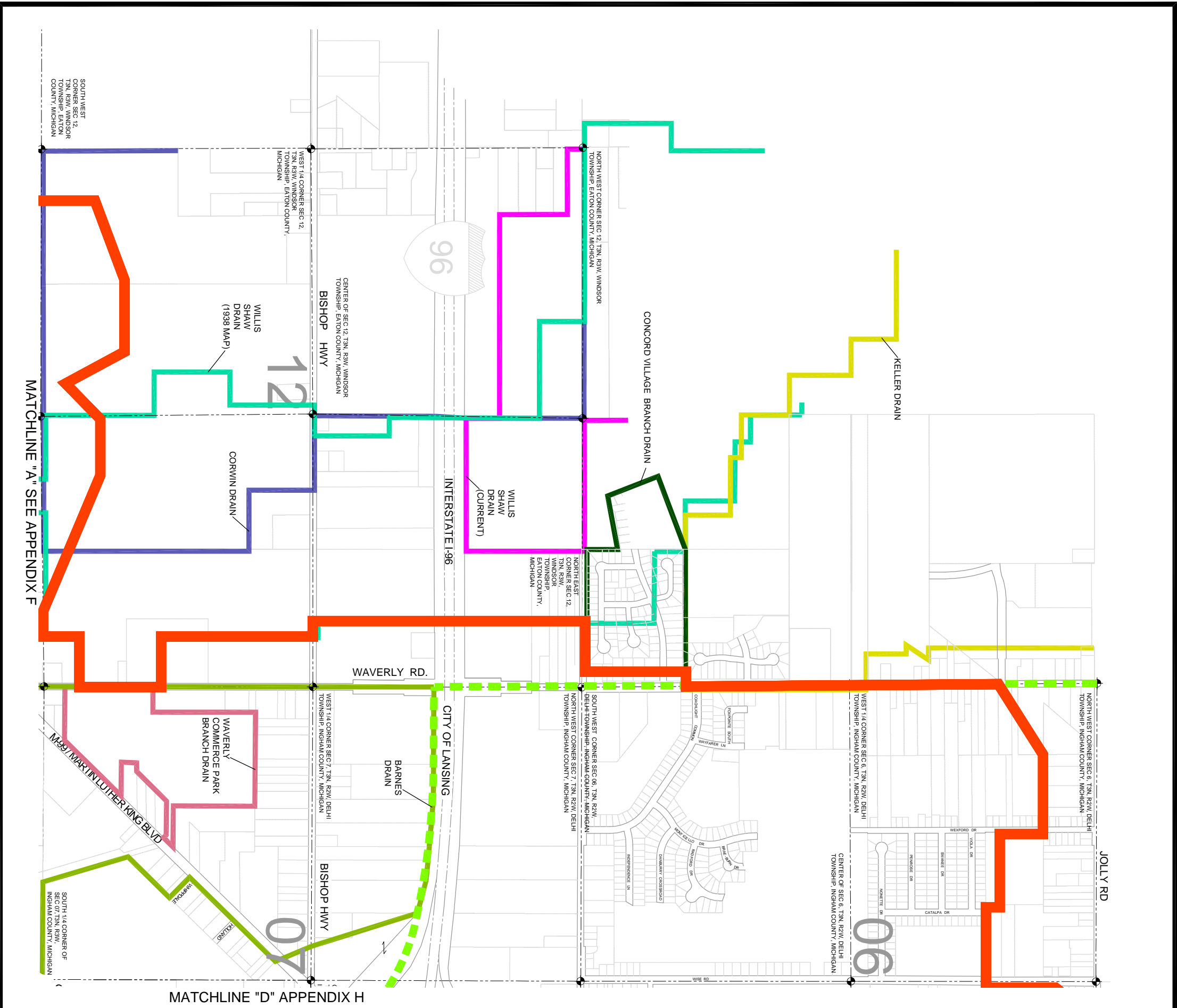
SHEET NO

APPENDIX



APPENDIX E

Detailed district map with adjacent & enclosed districts



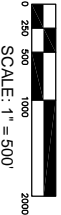
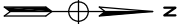
GILBERT & WEST TOWN INTERCOUNTY DRAIN DRAINAGE DISTRICT

T3N. R3W, WINDSOR TOWNSHIP, EATON COUNTY AND T3N. R2W, DELHI TOWNSHIP, CITY OF LANSING, INGHAM COUNTY, MICHIGAN

LEGEND

- PROPOSED GILBERT AND WEST TOWN INTERCOUNTY DRAIN DRAINAGE DISTRICT
- CARDINAL ESTATES BRANCH DRAIN DRAINAGE DISTRICT - (Recorded Liber 1864 Page 55)
 - GILBERT, CHISHOLM HILLS BRANCH DRAIN DRAINAGE DISTRICT - (current Drainage District Description)
 - GILBERT, GLENS BRANCH DRAIN DRAINAGE DISTRICT - (Recorded Liber 1340 Page 459)
 - GILBERT, GROVEBURG WOODS BRANCH DRAIN DRAINAGE DISTRICT - (Recorded Liber 1844 Page 861)
 - GILBERT, HORSTMEYER ESTATES BRANCH DRAIN DRAINAGE DISTRICT - (current Drainage District Description)
 - GILBERT, HOUGHTON HEIGHTS BRANCH DRAIN DRAINAGE DISTRICT - (current Drainage District Description)
 - GILBERT, HOUGHTON HOLLOW BRANCH DRAIN DRAINAGE DISTRICT - (Recorded Liber 1628 Page 231)
 - LANIER BRANCH DRAIN DRAINAGE DISTRICT - (Recorded Liber 1873 Page 770)
 - "L" LOCH WOODS BRANCH DRAIN DRAINAGE DISTRICT - (Recorded Liber 1973 Page 456)
 - MEIXKY, GROVEBURG FARMS BRANCH DRAIN DRAINAGE DISTRICT - (Recorded Liber 2289 Page 1140)
 - NORTH BRANCH GILBERT DRAIN DRAINAGE DISTRICT - (Recorded Liber 1910 Page 591)
 - WILLOUGHBY WOODS BRANCH DRAIN DRAINAGE DISTRICT - (Recorded Liber 1919 Page 368)
 - BARNES DRAIN DRAINAGE DISTRICT - (1988 Drainage District Description)
 - WAVERLY COMMERCE PARK BRANCH DRAIN DRAINAGE DISTRICT - (2000 Drainage District Description)
 - ALLEN DRAIN DRAINAGE DISTRICT - (1900 Drainage District Description)
 - ALLEN DRAIN DRAINAGE DISTRICT - (current Drainage District Description)
 - ALTON DRAIN DRAINAGE DISTRICT - (current Drainage District Description)
 - ALTON WASHINGTON ROAD BRANCH DRAIN DRAINAGE DISTRICT - (current Drainage District Description)
 - BINKLEY DRAIN DRAINAGE DISTRICT - (1994 Drainage District Description)
 - GROVEBURG & MENGER DRAIN DRAINAGE DISTRICT - (1984 Drainage District Map)
 - GROVEBURG & MENGER DRAIN DRAINAGE DISTRICT - (current Drainage District Map)
 - MENGER, MEADOW RIDGE NO. 3 BRANCH DRAIN DRAINAGE DISTRICT - (Recorded Liber 2878 Page 70)
 - FARM CREEK DRAIN DRAINAGE DISTRICT - (Recorded Liber 841 Page 295)
 - HETRICK DRAIN DRAINAGE DISTRICT - 2003 - (PROPOSED DISTRICT BOUNDARY)
 - HETRICK DRAIN DRAINAGE DISTRICT - 1998
 - CONCORD VILLAGE BRANCH DRAIN DRAINAGE DISTRICT - (1978 Design Drawings)
 - KORWIN DRAIN DRAINAGE DISTRICT - (1991 Drain Assessment Roll)
 - KELLER DRAIN DRAINAGE DISTRICT - (1982 Drainage District Map)
 - MURRAY DRAIN DRAINAGE DISTRICT - (1997 Drain Assessment Roll)
 - WILLIS SHAW DRAIN DRAINAGE DISTRICT - (current Drain Assessment Roll)
 - WILLIS SHAW DRAIN DRAINAGE DISTRICT - (1938 Drainage District Map)
 - CITY OF LANSING CORPORATE LIMITS
 - ROAD RIGHT-OF-WAY
 - HIGHWAY RIGHT-OF-WAY
 - SECTION LINE OR QUARTER SECTION LINE
 - GILBERT AND WEST TOWN INTERCOUNTY DRAIN CENTERLINE
 - EXISTING DRAIN CENTERLINE
 - SECTION CORNER
 - SECTION NUMBER

* - Chisholm Hills Drain Drainage District includes No. 1, No. 2, No. 3, and No. 4 plots, even though all areas are not described all together to being
** - Loch Woods Drain Drainage District also includes lands added in: Liber 1950 Page 294 & Liber 2075 Page 908 (including Woodward Farms plots)

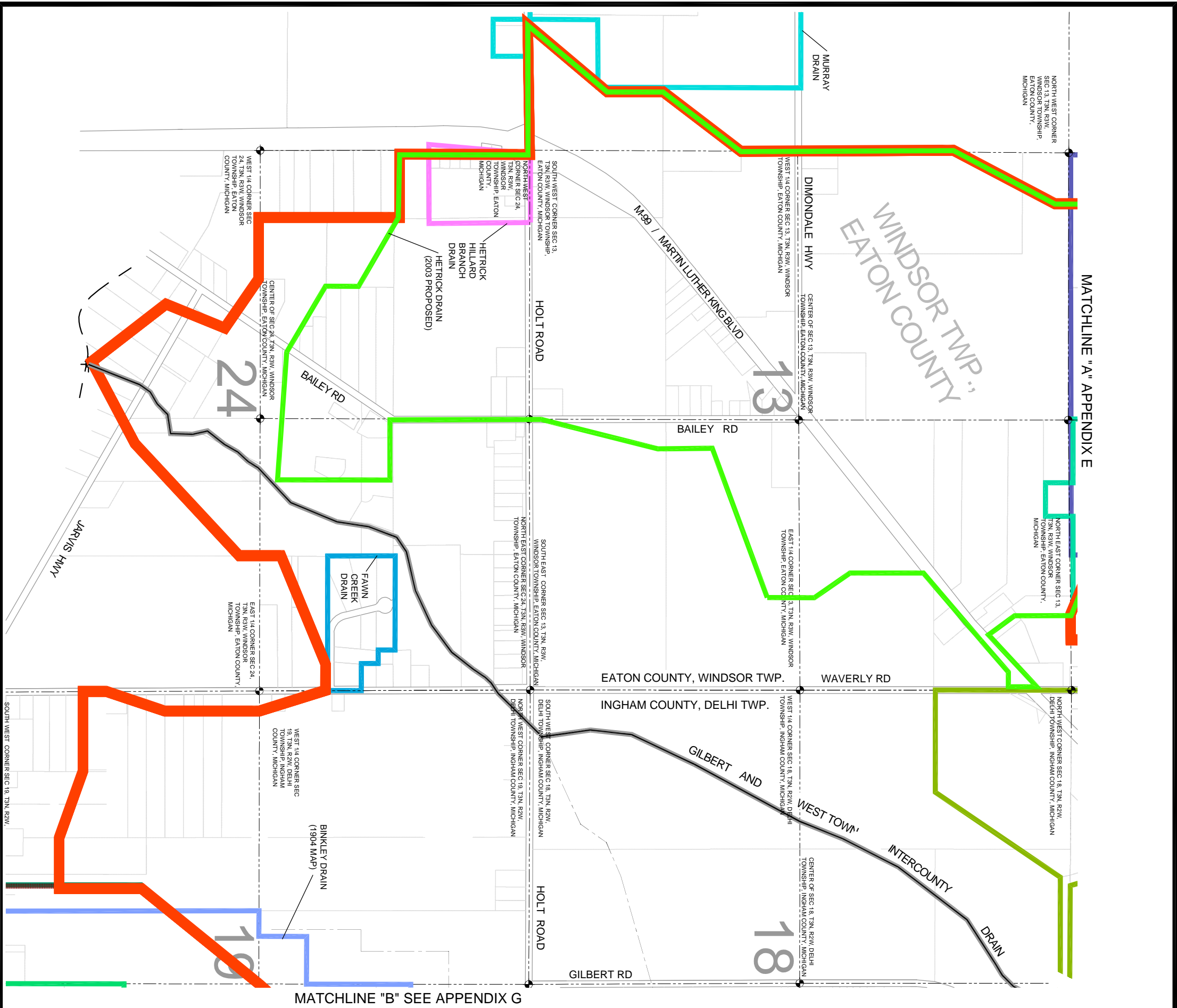


DETAILED DISTRICT MAP WITH ADJACENT & ENCLOSED DISTRICTS

PROJECT NO. 02003	SHEET NO. APPENDIX E	GILBERT & WEST TOWN INTERCOUNTY DRAIN DRAINAGE DISTRICT DELHI TOWNSHIP, CITY OF LANSING, INGHAM COUNTY & WINDSOR TOWNSHIP, EATON COUNTY, MICHIGAN	 FITZGERALD HENNE & ASSOCIATES, INC. environmental, engineering, surveying & landscape architecture services 5195 SOVEREIGN DR., SUITE D • LANSING, MI 48911 • 817.687.1100	NO.	REVISIONS	BY	DATE	Drawn By KRK
								Date 5/07/04
								Approved By
								Date
REVISED IN ACCORDANCE WITH CONSTRUCTION RECORDS				By	Date			

APPENDIX F

Detailed district map with adjacent & enclosed districts



GILBERT & WEST TOWN INTERCOUNTY
DRAIN DRAINAGE DISTRICT

T3N, R34W, WINDSOR TOWNSHIP, EATON COUNTY AND T3N, R24W, DELHI
TOWNSHIP, CITY OF LANSING, INGHAM COUNTY, MICHIGAN

LEGEND

PROPOSED GILBERT AND WEST TOWN INTERCOUNTY DRAIN DRAINAGE DISTRICT

- CORONAL, ESTATES BRANCH DRAIN DRAINAGE DISTRICT - (Recorded Liber 1844 Page 55)
- GILBERT, CHISHOLM HILLS BRANCH DRAIN DRAINAGE DISTRICT - (Current Drainage District Description)
- GILBERT, GLENS BRANCH DRAIN DRAINAGE DISTRICT - (Recorded Liber 1340 Page 495)
- GILBERT, GROVENBURG WOODS BRANCH DRAIN DRAINAGE DISTRICT - (Recorded Liber 1844 Page 881)
- GILBERT, HORSTMEYER ESTATES BRANCH DRAIN DRAINAGE DISTRICT - (Current Drainage District Description)
- GILBERT, HOUGHTON HEIGHTS BRANCH DRAIN DRAINAGE DISTRICT - (Current Drainage District Description)
- GILBERT, HOUGHTON HOLLOW BRANCH DRAIN DRAINAGE DISTRICT - (Current Drainage District Description)
- LANIER BRANCH DRAIN DRAINAGE DISTRICT - (Recorded Liber 1628 Page 221)
- *LOCH WOODS BRANCH DRAIN DRAINAGE DISTRICT - (Recorded Liber 1873 Page 770)
- MELWIK, GROVENBURG FARMS BRANCH DRAIN DRAINAGE DISTRICT - (Recorded Liber 2889 Page 1140)
- NORTH BRANCH GILBERT DRAIN DRAINAGE DISTRICT - (Recorded Liber 1910 Page 880)
- VILLOUGHBY WOODS BRANCH DRAIN DRAINAGE DISTRICT - (Recorded Liber 1919 Page 368)
- BARNES DRAIN DRAINAGE DISTRICT - (1988 Drainage District Description)
- WAVERTY, COMMERCE PARK BRANCH DRAIN DRAINAGE DISTRICT - (2000 Drainage District Description)
- ALLEN DRAIN DRAINAGE DISTRICT - (1990 Drainage District Description)
- ALLEN DRAIN DRAINAGE DISTRICT - (Current Drainage District Description)
- AUTON DRAIN DRAINAGE DISTRICT - (Current Drainage District Description)
- AUTON, WASHINGTON ROAD BRANCH DRAIN DRAINAGE DISTRICT - (Current Drainage District Description)
- BINKLEY DRAIN DRAINAGE DISTRICT - (1904 Drainage District Description)
- BINKLEY DRAIN DRAINAGE DISTRICT - (Current Drainage District Map)
- GROVENBURG & MENGER DRAIN DRAINAGE DISTRICT - (1984 Drainage District Map)
- MENGER, MEADOW RIDGE NO. 3 BRANCH DRAIN DRAINAGE DISTRICT - (Current Drainage District Map)
- MENGER, MEADOW RIDGE NO. 3 BRANCH DRAIN DRAINAGE DISTRICT - (Recorded Liber 2878 Page 70)
- FAWN CREEK DRAIN DRAINAGE DISTRICT - (Recorded Liber 841 Page 289)
- HETRICK DRAIN DRAINAGE DISTRICT - (PROPOSED DISTRICT BOUNDARY)
- HETRICK DRAIN DRAINAGE DISTRICT - 1988
- CONCORD VILLAGE BRANCH DRAIN DRAINAGE DISTRICT - (1978 Drainage District Map)
- CORWIN DRAIN DRAINAGE DISTRICT - (1991 Drain Assessment Roll)
- KELLER DRAIN DRAINAGE DISTRICT - (1982 Drainage District Map)
- MURRAY DRAIN DRAINAGE DISTRICT - (1997 Drain Assessment Roll)
- WILLES SHAW DRAIN DRAINAGE DISTRICT - (Current Drain Assessment Roll)
- WILLES SHAW DRAIN DRAINAGE DISTRICT - (1998 Drainage District Map)
- CITY OF LANSING CORPORATE LIMITS
- ROAD RIGHT OF WAY
- HIGHWAY RIGHT OF WAY
- PARCEL LINE
- SECTION LINE OR QUARTER SECTION LINE
- GILBERT AND WEST TOWN INTERCOUNTY DRAIN CENTERLINE
- EXISTING DRAIN CENTERLINE
- SECTION CORNER
- 20

* Children Hills Drain Drainage District includes N^o. 1, N^o. 2, N^o. 3, and N^o. 4, date even though all areas are not described all together to being
* Children Hills Drain Drainage District includes N^o. 1, N^o. 2, N^o. 3, and N^o. 4, date even though all areas are not described all together to being
** Loch Woods Drain Drainage District also includes lands added in: Liber 1953 Page 284 & Liber 2079 Page 908 (including Moorwood Farms plots)

FITZGERALD HENNE & ASSOCIATES, INC.

environmental, engineering, surveying & landscape architecture services

5185 SOVEREIGN DR., SUITE D • LANSING, MI 48911 • 817.687.1100

NO.	REVISIONS	BY	DATE	Drawn By
				KRK
				Date
				5/07/04
				Approved By
				Date
REVISED IN ACCORDANCE WITH CONSTRUCTION RECORDS By Date				

GILBERT & WEST TOWN INTERCOUNTY
DRAIN DRAINAGE DISTRICT

DELHI TOWNSHIP, CITY OF LANSING, INGHAM COUNTY
& WINDSOR TOWNSHIP, EATON COUNTY, MICHIGAN

PROJECT NO.
02003

SHEET NO.
APPENDIX F

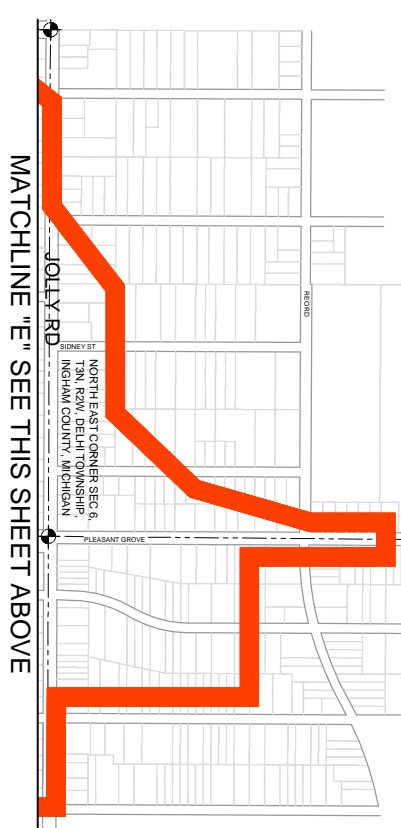
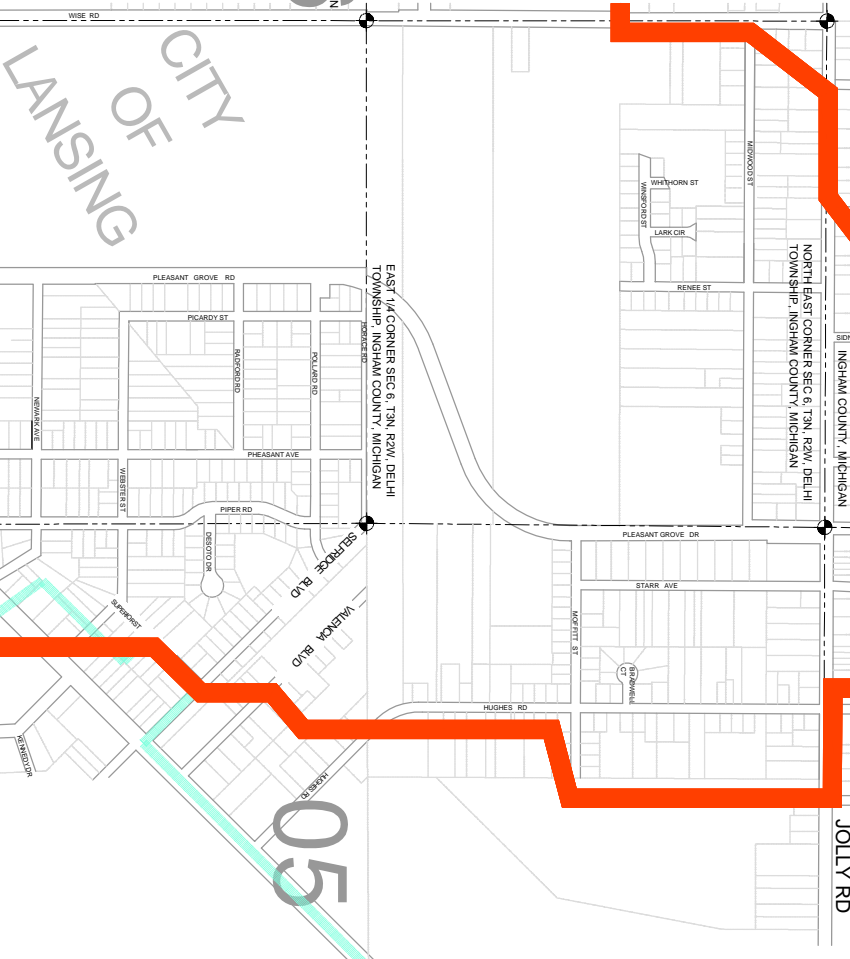
APPENDIX G

Detailed district map with adjacent & enclosed districts

APPENDIX H

Detailed district map with adjacent & enclosed districts

MATCHLINE "E" SEE THIS SHEET BELOW

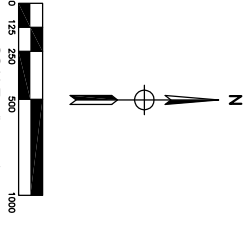


GILBERT & WEST TOWN INTERCOUNTY DRAIN DRAINAGE DISTRICT

T3N, R3W, WINDSOR TOWNSHIP, EATON COUNTY AND T3N, R2W, DELHI TOWNSHIP, CITY OF LANSING, INGHAM COUNTY, MICHIGAN

LEGEND

- PROPOSED GILBERT AND WEST TOWN INTERCOUNTY DRAIN DRAINAGE DISTRICT
- CARDINAL ESTATES BRANCH DRAIN DRAINAGE DISTRICT - (Recorded Liber 1864 Page 59)
- GILBERT CHISHOLM HILLS BRANCH DRAIN DRAINAGE DISTRICT - (current Drainage District Description)
- GILBERT GLENS BRANCH DRAIN DRAINAGE DISTRICT - (Recorded Liber 1340 Page 439)
- GILBERT GROVENBURG WOODS BRANCH DRAIN DRAINAGE DISTRICT - (Recorded Liber 1844 Page 681)
- GILBERT HOSSTIMEYER ESTATES BRANCH DRAIN DRAINAGE DISTRICT - (current Drainage District Description)
- GILBERT HOUGHTON HEIGHTS BRANCH DRAIN DRAINAGE DISTRICT - (current Drainage District Description)
- GILBERT HOUGHTON HOLLOW BRANCH DRAIN DRAINAGE DISTRICT - (current Drainage District Description)
- LANIER BRANCH DRAIN DRAINAGE DISTRICT - (Recorded Liber 1828 Page 231)
- LEACH WOODS BRANCH DRAIN DRAINAGE DISTRICT - (Recorded Liber 1873 Page 770)
- MELKVIK DRAIN DRAINAGE DISTRICT - (Recorded Liber 1873 Page 459)
- MELKVIK GROVENBURG FARMS BRANCH DRAIN DRAINAGE DISTRICT - (Recorded Liber 2889 Page 1140)
- NORTH BRANCH GILBERT DRAIN DRAINAGE DISTRICT - (Recorded Liber 1910 Page 890)
- VILLOUGHBY WOODS BRANCH DRAIN DRAINAGE DISTRICT - (Recorded Liber 1919 Page 366)
- BARNES BRANCH DRAINAGE DISTRICT - (1988 Drainage District Description)
- WANDERLY COMMERCE PARK BRANCH DRAIN DRAINAGE DISTRICT - (2000 Drainage District Description)
- ALLEN DRAIN DRAINAGE DISTRICT - (1990 Drainage District Description)
- ALLEN DRAIN DRAINAGE DISTRICT - (current Drainage District Map)
- ALTON DRAIN DRAINAGE DISTRICT - (current Drainage District Description)
- ALTON WASHINGTON ROAD BRANCH DRAIN DRAINAGE DISTRICT - (current Drainage District Description)
- BINKLEY DRAIN DRAINAGE DISTRICT - (1984 Drainage District Description)
- BINKLEY DRAIN DRAINAGE DISTRICT - (current Drainage District Map)
- GROVENBURG & MENGER DRAIN DRAINAGE DISTRICT - (1984 Drainage District Map)
- GROVENBURG & MENGER DRAIN DRAINAGE DISTRICT - (current Drainage District Map)
- MENGER MEADOW RIDGE NO. 3 BRANCH DRAIN DRAINAGE DISTRICT - (Recorded Liber 2978 Page 70)
- FAVNA CREEK DRAIN DRAINAGE DISTRICT - (Recorded Liber 841 Page 285)
- HETRICK DRAIN DRAINAGE DISTRICT - 2003 - (PROPOSED DISTRICT BOUNDARY)
- HETRICK DRAIN DRAINAGE DISTRICT - 1968
- CONCORD VILLAGE BRANCH DRAIN DRAINAGE DISTRICT - (1978 Design Drawings)
- CORWIN DRAIN DRAINAGE DISTRICT - (1997 Drain Assessment Roll)
- KELLER DRAIN DRAINAGE DISTRICT - (1982 Drainage District Map)
- MURRAY DRAIN DRAINAGE DISTRICT - (1987 Drain Assessment Roll)
- VILLIS SHAW DRAIN DRAINAGE DISTRICT - (current Drain Assessment Roll)
- VILLIS SHAW DRAIN DRAINAGE DISTRICT - (1938 Drainage District Map)
- CITY OF LANSING CORPORATE LIMITS
- ROAD RIGHT OF WAY
- HIGHWAY RIGHT OF WAY
- PARCEL LINE
- SECTION LINE OR QUARTER SECTION LINE
- GILBERT AND WEST TOWN INTERCOUNTY DRAIN CENTERLINE
- EXISTING DRAIN CENTERLINE
- SECTION CORNER
- SECTION NUMBER



* - Chisholm Hills Drain Drainage District includes No. 1, No. 2, No. 3, and No. 4 plots, even though all areas are not described all together to being within the district boundary (individually described as part of district boundary)

** - Leach Woods Drain Drainage District also includes other districts in Liber 1880 Page 254 & Liber 2075 Page 908 (including Mckenzie Farms plots)

DETAILED DISTRICT MAP WITH ADJACENT & ENCLOSED DISTRICTS

GILBERT & WEST TOWN INTERCOUNTY DRAIN DRAINAGE DISTRICT

DELHI TOWNSHIP, CITY OF LANSING, INGHAM COUNTY & WINDSOR TOWNSHIP, EATON COUNTY, MICHIGAN



NO.	REVISIONS	BY	DATE	Drawn By
				KRK
				Date
				5/07/04
				Approved By
				Date
REVISED IN ACCORDANCE WITH CONSTRUCTION RECORDS By _____ Date _____				

PROJECT NO. 02003

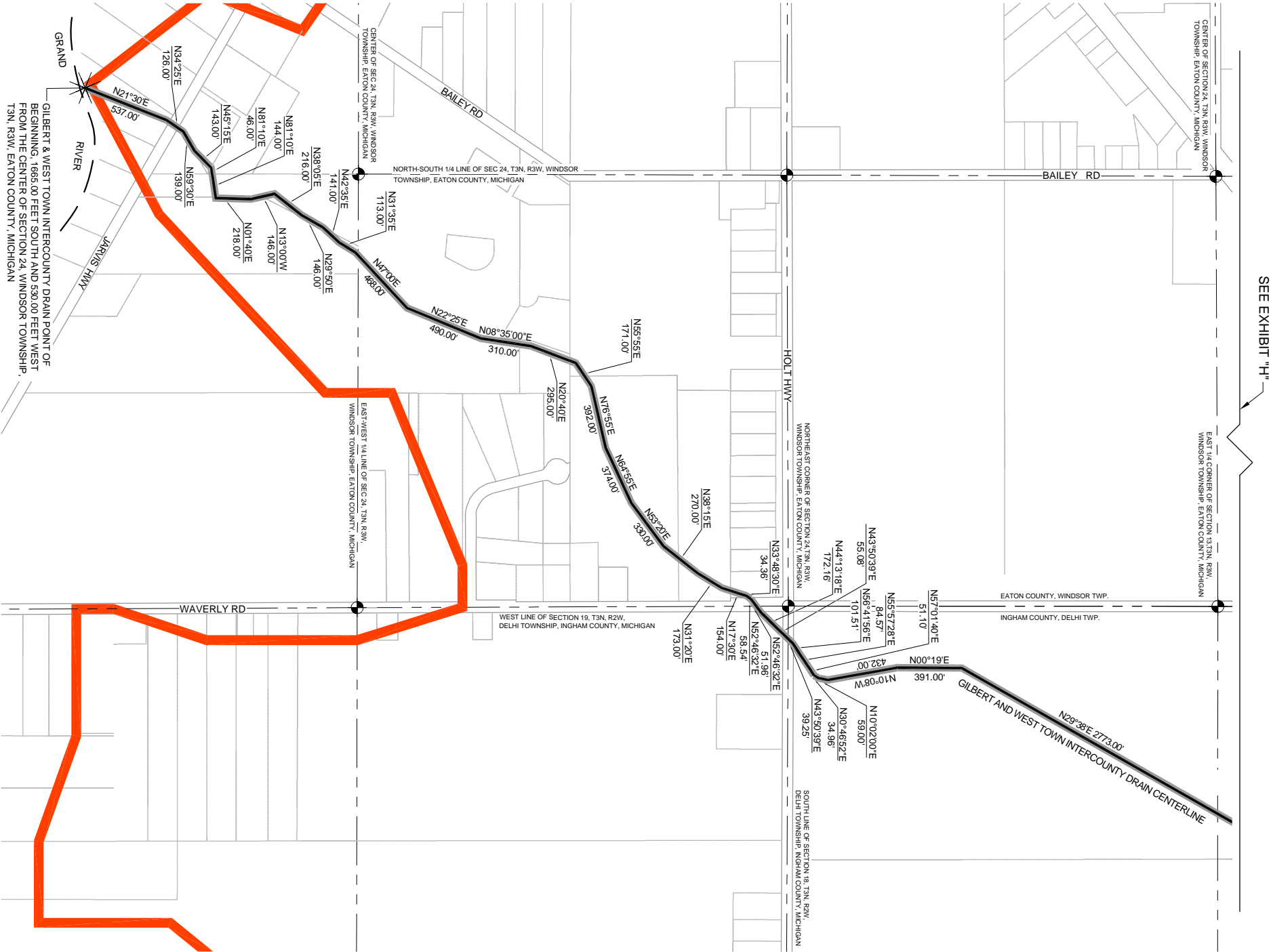
SHEET NO. APPENDIX H

APPENDIX I

West Town and Gilbert Intercounty Drain Route and Course Information - Southerly Portion

GILBERT & WEST TOWN INTERCOUNTY DRAIN DRAINAGE DISTRICT

T3N, R3W, WINDSOR TOWNSHIP, EATON COUNTY AND T3N, R2W, DELHI TOWNSHIP, CITY OF LANSING, INGHAM COUNTY, MICHIGAN

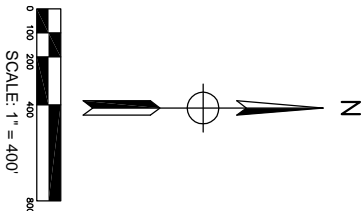


Proposed Gilbert and West Town Drain Route and Course Description:

Beginning at the Grand River at a point 1665.00 feet South and 530.00 feet West from the center of section 24, T3N, R3W, Windsor Township, Eaton County, Michigan, thence N 121°30' E 537.00 feet, thence N 34°25' E 126.00 feet, thence N 59°30' E 138.00 feet, thence N 45°15' E 143.00 feet, thence N 81°10' E 46.00 feet more or less to a point on the North-South 1/4 line of said Section 24 said point lying 877.00 feet South from the center of said Section 24, thence continuing N 81°10' E 144.00 feet, thence N 01°40' E 216.00 feet, thence N 13°1' W 146.00 feet, thence N 36°05' E 216.00 feet, thence N 29°50' E 146.00 feet, thence N 42°35' E 141.00 feet, thence N 51°35' E 113.00 feet more or less to a point on the East-West 1/4 line of said Section 24 said point lying 470.00 feet East from the center of said Section 24, thence N 47° E 466.00 feet, thence N 22°25' E 480.00 feet, thence N 06°35' E 310.00 feet, thence N 20°40' E 285.00 feet, thence N 55°35' E 171.00 feet, thence N 76°55' E 382.00 feet, thence N 64°55' E 374.00 feet, thence N 53°20' E 330.00 feet, thence N 36°15' E 270.00 feet thence N 31°20' E 173.00 feet, thence N 17°30' E 154.00 feet, thence N 33°49'30" E 34.36 feet, thence N 52°46'32" E 58.54 feet more or less to a point on the East line of said Section 24 said point lying 1935.00 feet South from the Northwest corner of said Section 24, thence continuing N 52°46'32" E 51.96 feet, thence N 44°13'18" E 172.16 feet, thence N 43°50'39" E 59.08 feet more or less to a point on the South line of Section 18, T3N, R2W, Delhi Township, Ingham County, Michigan said point lying 200.30 feet East from the Southwest corner of said Section 18, thence continuing N 43°50'39" E 38.25 feet, thence N 55°57'28" E 84.57 feet, thence N 57°01'40" E 91.10 feet, thence N 30°46'52" E 34.96 feet, thence N 56°41'56" E 101.51 feet, thence N 10°08' W 432.00 feet, thence N 00°19' E 381.00 feet, thence N 29°38' E 2773.00 feet, thence N 46°59' E 1497.00 feet more or less to a point on the North-South 1/4 line of said Section 18, said point lying 772.00 feet Southerly from the North 1/4 corner of said section 18, thence continuing N 46°59' E 47.00 feet, thence N 27°46' E 233.00 feet, thence N 11°30' E 538.00 feet, thence N 27°38' E 4.00 feet more or less to a point on the North line of said Section 18 said point lying 272.00 feet East from the North 1/4 corner of said Section 18, thence continuing N 27°38' E 182.00 feet, thence N 19°10' E 289.00 feet, thence N 24°41' E 313.00 feet, thence N 01°44' E 139.00 feet, thence N 13°01' E 119.00 feet, thence N 30°43' E 323.00 feet, thence N 18°33' W 363.00 feet, thence N 07°22' W 53.00 feet, thence N 04°15' E 57.00 feet, thence N 10°19' E 89.00 feet, thence N 28°25' E 316.00 feet, thence N 18°31' E 596.00 feet more or less to a point on the East-West 1/4 line of Section 07 said Delhi Township, said point lying 891.00 feet East from the corner of said Section 07, thence continuing N 18°31' E 301.00 feet, thence N 64°34' E 260.00 feet, thence N 36°36' E 60.00 feet, thence N 02°38' E 403.00 feet, thence N 10°56' E 425.00 feet, thence N 62°16' W 67.00 feet, thence N 65°48' W 267.00 feet, thence N 04°16' E 112.00 feet, thence N 01°49' W 169.00 feet, thence N 89°45' W 417.00 feet, thence N 48°30' W 40.00 feet, thence N 02°09' E 580.00 feet to the point of ending.

LEGEND

- PROPOSED - GILBERT & WEST TOWN INTERCOUNTY DRAIN DRAINAGE DISTRICT
- GILBERT AND WEST TOWN INTERCOUNTY DRAIN CENTERLINE
- ROAD RIGHT OF WAY
- PARCEL LINE
- SECTION LINE OR QUARTER SECTION LINE
- SECTION CORNER



WEST TOWN AND GILBERT INTERCOUNTY DRAIN ROUTE & COURSE INFORMATION-SOUTHERLY PORTION

PROJECT NO.
02003

SHEET NO.
APPENDIX I

GILBERT & WEST TOWN INTERCOUNTY DRAIN DRAINAGE DISTRICT

DELHI TOWNSHIP, CITY OF LANSING, INGHAM COUNTY & WINDSOR TOWNSHIP, EATON COUNTY, MICHIGAN



NO.	REVISIONS		BY	DATE	Drawn By
					REO
					Date
					05/11/04
					Approved By
					Date
REVISED IN ACCORDANCE WITH CONSTRUCTION RECORDS By _____ Date _____					

APPENDIX J

Gilbert and West Town Intercounty Drain Route and Course Information - Northerly Portion

GILBERT & WEST TOWN INTERCOUNTY DRAIN DRAINAGE DISTRICT

T3N, R3W, WINDSOR TOWNSHIP, EATON COUNTY AND T3N, R2W, DELHI TOWNSHIP, CITY OF LANSING, INGHAM COUNTY, MICHIGAN

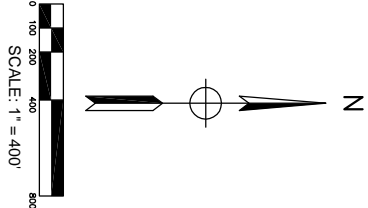


Gilbert and West Town Drain Proposed Route and Course Description:

Beginning at the Grand River at a point 1665.00 feet South and 530.00 feet West from the center of section 24, T3N, R3W, Windsor Township, Eaton County, Michigan, thence N 21° 30' E 557.00 feet, thence N 34° 25' E 126.00 feet, thence N 59° 30' E 139.00 feet, thence N 45° 15' E 143.00 feet, thence N 61° 10' E 46.00 feet more or less to a point on the North-South 1/4 line of said Section 24 said point lying 677.00 feet South from the center of said Section 24, thence continuing N 61° 10' E 144.00 feet, thence N 01° 40' E 216.00 feet, thence N 13° 13' W 146.00 feet, thence N 36° 05' E 216.00 feet, thence N 29° 50' E 146.00 feet, thence N 42° 35' E 141.00 feet, thence N 01° 35' E 113.00 feet more or less to a point on the East-West 1/4 line of said Section 24 said point lying 470.00 feet East from the center of said Section 24, thence N 49° 15' E 466.00 feet, thence N 22° 25' E 489.00 feet, thence N 08° 55' E 510.00 feet, thence N 20° 40' E 265.00 feet, thence N 55° 55' E 171.00 feet, thence N 76° 55' E 582.00 feet, thence N 64° 55' E 574.00 feet, thence N 53° 20' E 350.00 feet, thence N 38° 15' E 270.00 feet, thence N 31° 20' E 173.00 feet, thence N 17° 30' E 154.00 feet, thence N 33° 46' 30" E 34.36 feet, thence N 52° 46' 32" E 56.54 feet more or less to a point on the East line of said Section 24 said point lying 195.50 feet South from the Northwest corner of said Section 24, thence continuing N 52° 46' 32" E 57.86 feet, thence N 44° 13' 18" E 172.16 feet, thence N 45° 50' 39" E 55.08 feet more or less to a point on the South line of Section 18, T3N, R2W, Delhi Township, Ingham County, Michigan said point lying 200.50 feet East from the Southwest corner of said Section 18, thence continuing N 43° 50' 39" E 39.25 feet, thence N 56° 41' 56" E 101.51 feet, thence N 55° 57' 28" E 64.57 feet, thence N 57° 01' 40" E 51.10 feet, thence N 30° 46' 59" E 149.70 feet, thence N 10° 02' E 59.00 feet, thence N 10° 08' W 452.00 feet, thence N 00° 19' E 391.00 feet, thence N 57° 01' 40" E 51.10 feet, thence N 30° 46' 59" E 149.70 feet more or less to a point on the North-South 1/4 line of said Section 18, said point lying 772.00 feet South from the North 1/4 corner of said section 18, thence continuing N 46° 59' E 47.00 feet, thence N 27° 46' E 233.00 feet, thence N 11° 30' E 538.00 feet, thence N 27° 38' E 4.00 feet more or less to a point on the North line of said Section 18 said point lying 272.00 feet East from the North 1/4 corner of said Section 18, thence continuing N 27° 38' E 162.00 feet, thence N 19° 10' E 263.00 feet, thence N 24° 44' E 313.00 feet, thence N 01° 44' E 139.00 feet, thence N 13° 01' E 119.00 feet, thence N 20° 43' E 323.00 feet, thence N 18° 33' W 363.00 feet, thence N 07° 22' W 53.00 feet, thence N 04° 15' E 67.00 feet, thence N 10° 19' E 89.00 feet, thence N 28° 25' E 316.00 feet, thence N 18° 31' E 696.00 feet more or less to a point on the East-West 1/4 line of Section 07 said Delhi Township, said point lying 897.00 feet East from the center of said Section 07, thence continuing N 18° 31' E 301.00 feet, thence N 64° 34' E 260.00 feet, thence N 36° 38' E 60.00 feet, thence N 02° 38' E 403.00 feet, thence N 10° 56' E 425.00 feet, thence N 62° 16' W 67.00 feet, thence N 45° 48' W 267.00 feet, thence N 04° 16' E 112.00 feet, thence N 01° 49' W 169.00 feet, thence N 89° 45' W 417.00 feet, thence N 48° 30' W 40.00 feet, thence N 02° 09' E 580.00 feet to the point of ending.

LEGEND

- PROPOSED - GILBERT & WEST TOWN INTERCOUNTY DRAIN DRAINAGE DISTRICT
- GILBERT AND WEST TOWN INTERCOUNTY DRAIN CENTERLINE
- CITY OF LANSING CORPORATE LIMITS
- ROAD RIGHT OF WAY
- PARCEL LINE
- SECTION LINE OR QUARTER SECTION LINE
- SECTION CORNER



GILBERT AND WEST TOWN INTERCOUNTY DRAIN ROUTE & COURSE INFORMATION-NORTHERLY PORTION

NO.	REVISIONS	BY	DATE	Drawn By	REO
				Date	05/11/04
				Approved By	
				Date	
REVISED IN ACCORDANCE WITH CONSTRUCTION RECORDS				By	Date



GILBERT & WEST TOWN INTERCOUNTY DRAIN DRAINAGE DISTRICT

DELHI TOWNSHIP, CITY OF LANSING, INGHAM COUNTY & WINDSOR TOWNSHIP, EATON COUNTY, MICHIGAN

PROJECT NO.
02003

SHEET NO.

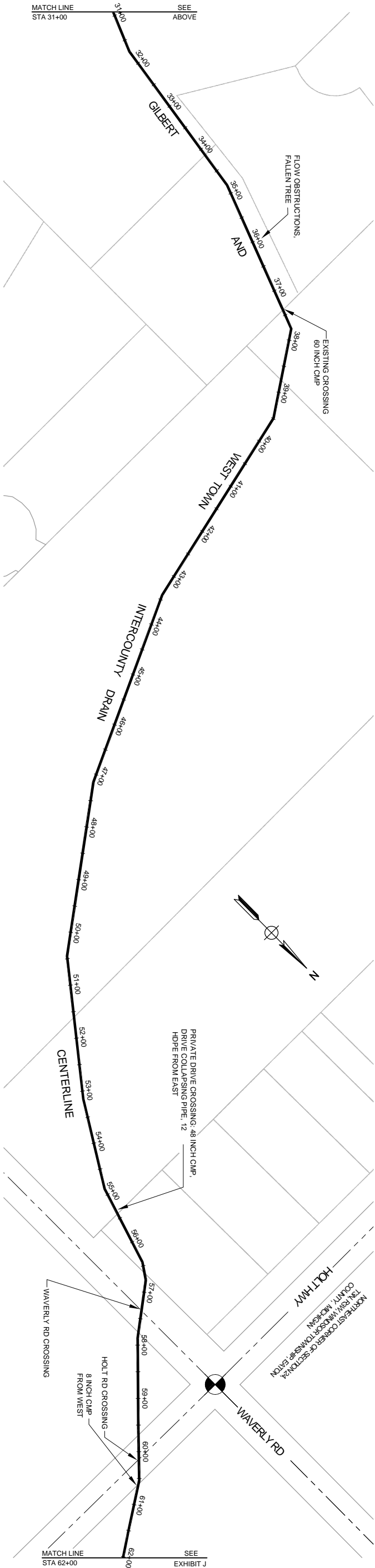
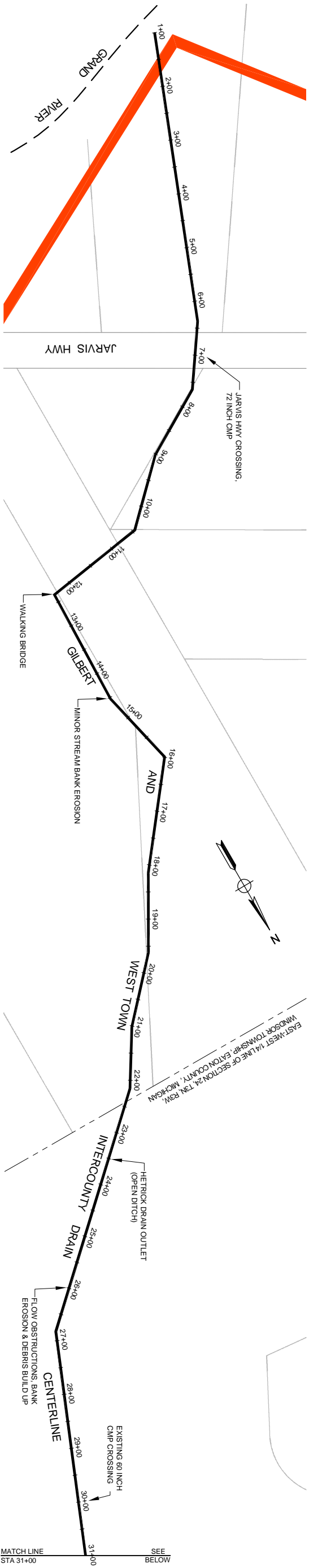
APPENDIX J

APPENDIX K

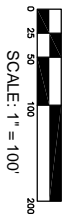
Drain Conditions and Flow Problems – STA 1+00 to 62+00

GILBERT & WEST TOWN INTERCOUNTY DRAIN DRAINAGE DISTRICT

T3N, R3W, WINDSOR TOWNSHIP, EATON COUNTY AND T3N, R2W, DELHI TOWNSHIP, CITY OF LANSING, INGHAM COUNTY, MICHIGAN



- LEGEND**
- PROPOSED - GILBERT & WEST TOWN INTERCOUNTY DRAIN DRAINAGE DISTRICT
 - EXISTING DRAIN CENTERLINE
 - ROAD RIGHT OF WAY
 - PARCEL LINE
 - SECTION LINE OR QUARTER SECTION LINE
 - SECTION CORNER



DRAIN CONDITIONS & FLOW PROBLEMS- STA 1+00 TO 62+00

NO.	REVISIONS	BY	DATE	Drawn By
				REO
				Date
				05/11/04
				Approved By
				Date

REVISED IN ACCORDANCE WITH CONSTRUCTION RECORDS By Date



GILBERT & WEST TOWN INTERCOUNTY DRAIN DRAINAGE DISTRICT

DELHI TOWNSHIP, CITY OF LANSING, INGHAM COUNTY & WINDSOR TOWNSHIP, EATON COUNTY, MICHIGAN

PROJECT NO.
02003

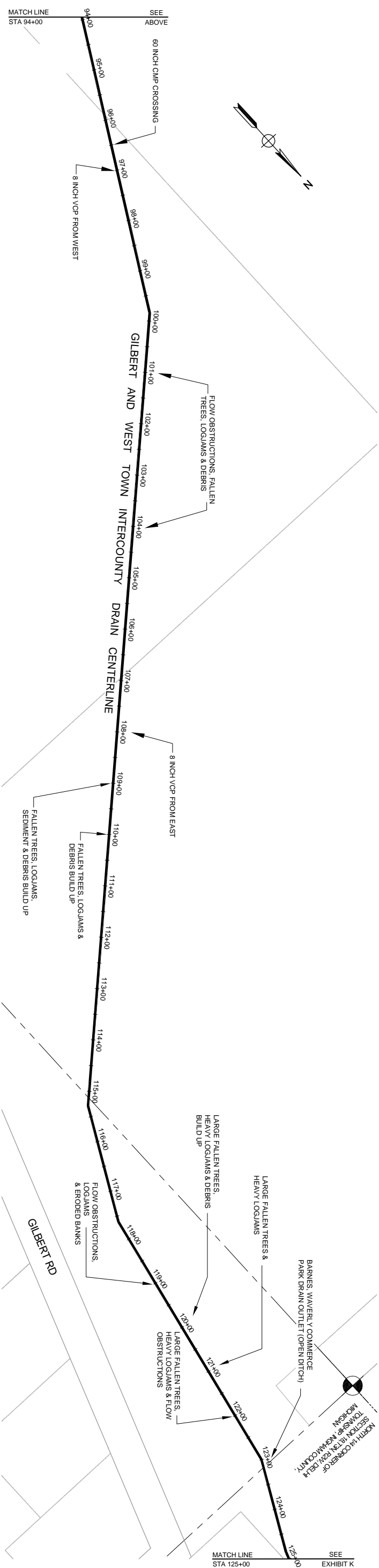
SHEET NO.

APPENDIX K

APPENDIX L

Drain Conditions and Flow Problems – STA 62+00 to 125+00

T3N, R3W, WINDSOR TOWNSHIP, EATON COUNTY AND T3N, R2W, DELHI
 TOWNSHIP, CITY OF LANSING, INGHAM COUNTY, MICHIGAN



**PROPOSED - GILBERT & WEST TOWN
INTERCOUNTY DRAIN DRAINAGE DISTRICT**

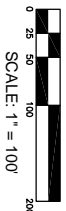
EXISTING DRAIN CENTERLINE

ROAD RIGHT OF WAY

PARCEL LINE

SECTION LINE OR QUARTER SECTION LINE

SECTION CORNER



DRAIN CONDITIONS & FLOW PROBLEMS

NO.	REVISIONS	BY	DATE	Drawn By
				REO
				Date
				05/11/04
				Approved By
				Date
REVISED IN ACCORDANCE WITH CONSTRUCTION RECORDS		By	Date	

REVISD IN ACCORDANCE WITH CONSTRUCTION RECORDS By _____ Date _____



DELHI TOWNSHIP, CITY OF LANSING, INGHAM COUNTY
& WINDSOR TOWNSHIP, EATON COUNTY, MICHIGAN

PROJECT NO

02003

SHEET NO.

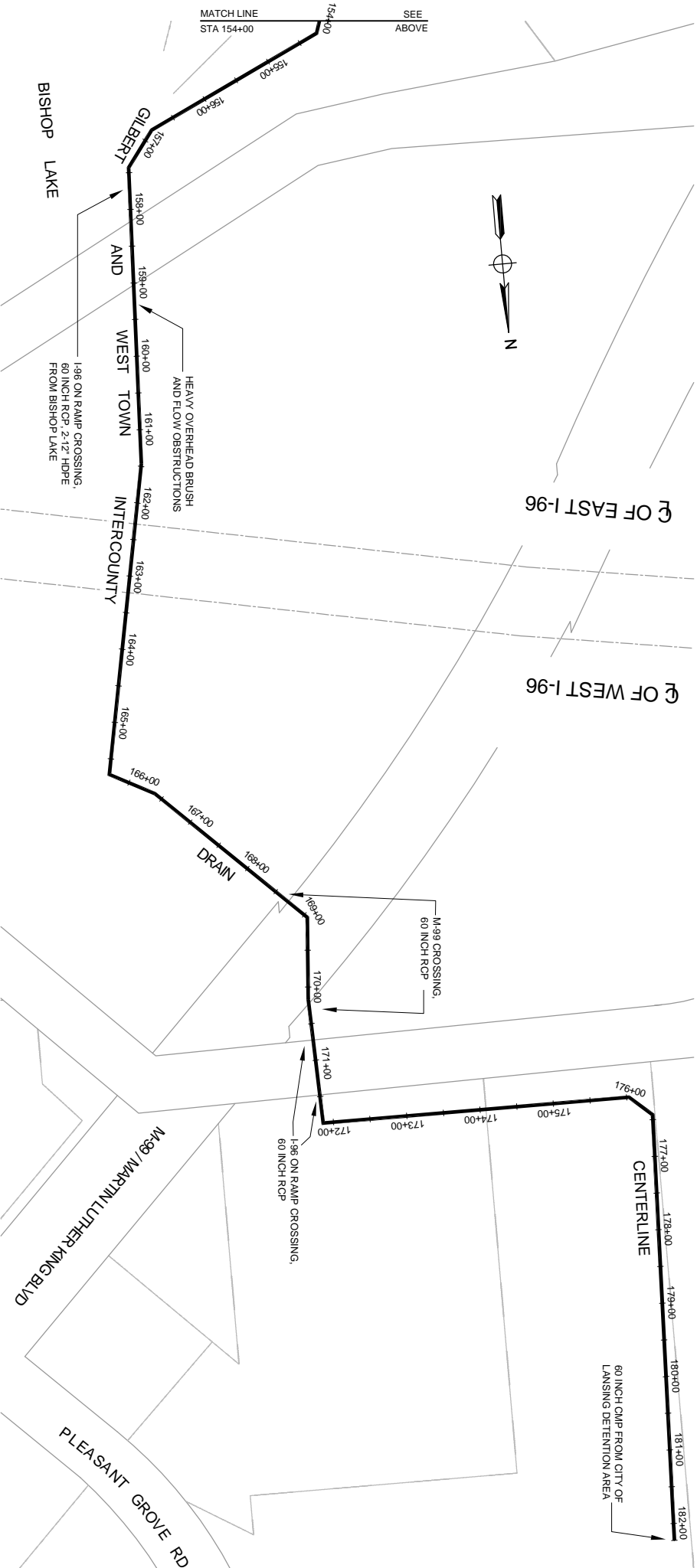
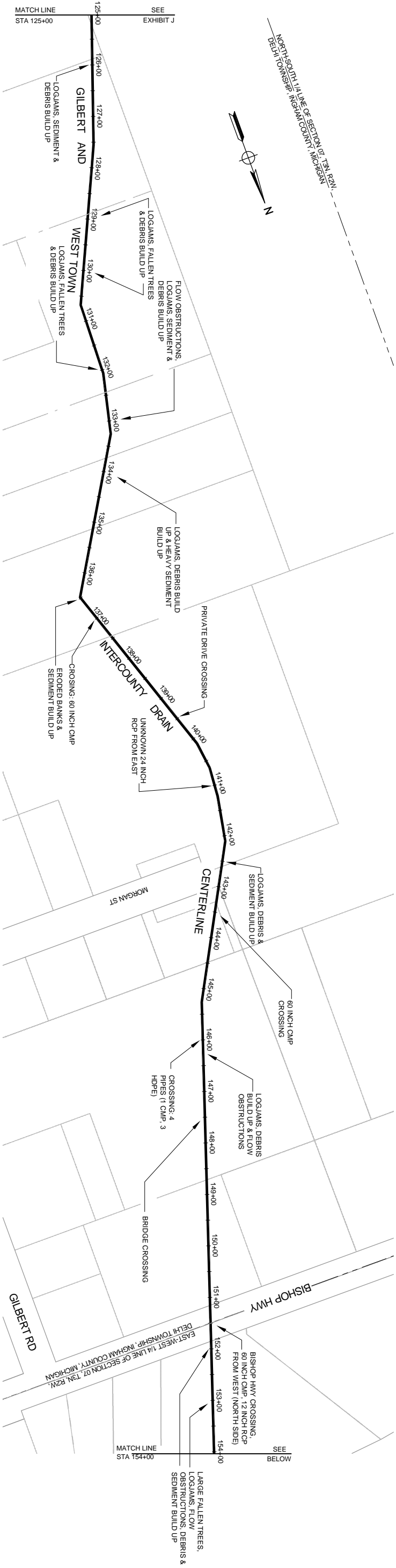
APPENDIX L

APPENDIX M

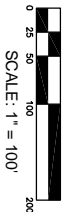
Drain Conditions and Flow Problems – STA 125+00 to 182+00

GILBERT & WEST TOWN INTERCOUNTY DRAIN DRAINAGE DISTRICT

T3N, R3W, WINDSOR TOWNSHIP, EATON COUNTY AND T3N, R2W, DELHI TOWNSHIP, CITY OF LANSING, INGHAM COUNTY, MICHIGAN



- LEGEND**
- PROPOSED - GILBERT & WEST TOWN INTERCOUNTY DRAIN DRAINAGE DISTRICT
 - EXISTING DRAIN CENTERLINE
 - ROAD RIGHT OF WAY
 - PARCEL LINE
 - SECTION LINE OR QUARTER SECTION LINE
 - SECTION CORNER



DRAIN CONDITIONS & FLOW PROBLEMS EXHIBIT
-STA 125+00 TO 182+00



NO.	REVISIONS	BY	DATE	Drawn
				By
				REO
				Date
				05/11/04
				Approved
				By
				Date
REVISED IN ACCORDANCE WITH CONSTRUCTION RECORDS				By
				Date

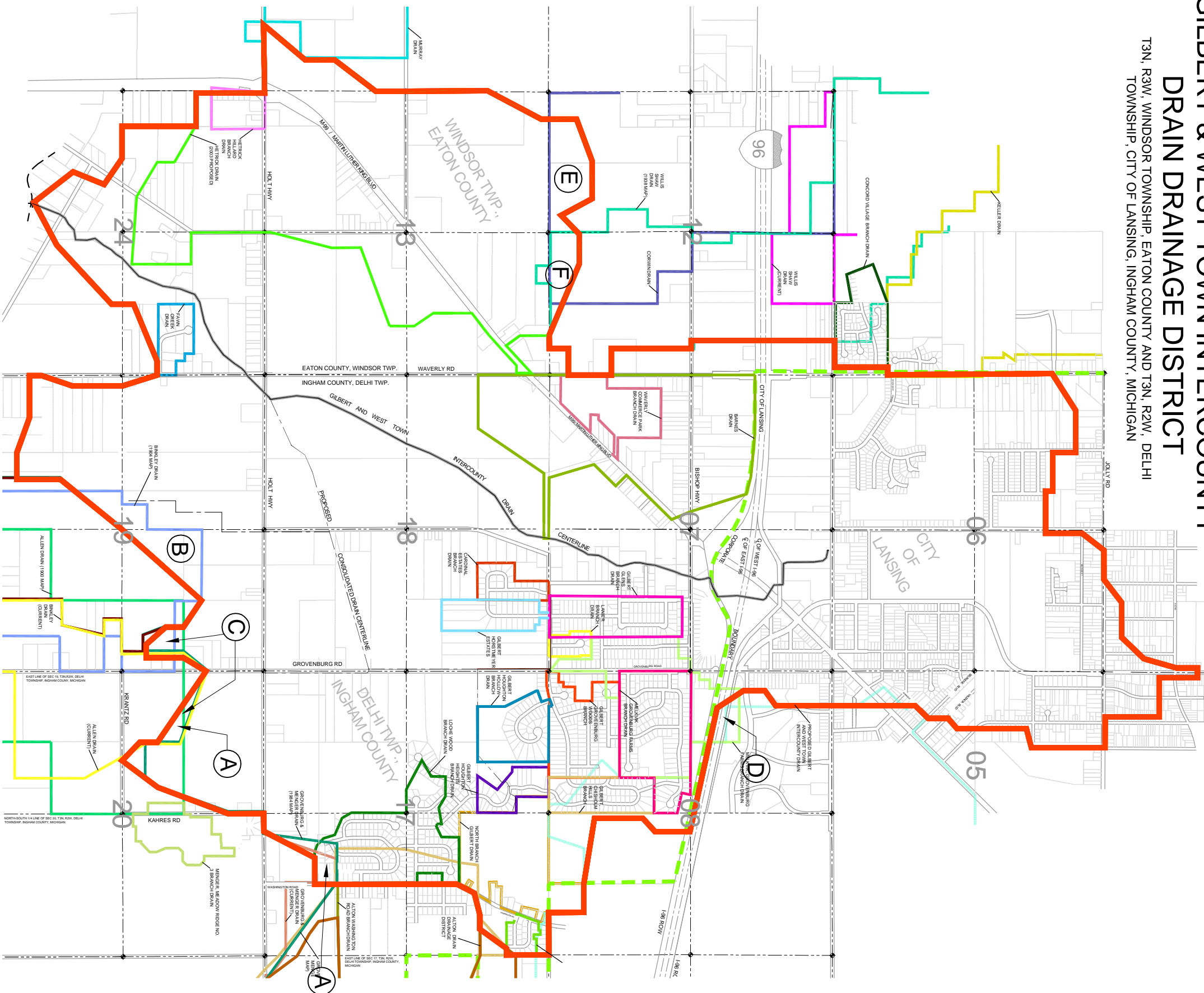
GILBERT & WEST TOWN INTERCOUNTY DRAIN DRAINAGE DISTRICT
DELHI TOWNSHIP, CITY OF LANSING, INGHAM COUNTY & WINDSOR TOWNSHIP, EATON COUNTY, MICHIGAN

PROJECT NO.
02003
SHEET NO.
APPENDIX M

APPENDIX N

Conflict Map

T3N, R3W, WINDSOR TOWNSHIP, EATON COUNTY AND T3N, R2W, DELHI TOWNSHIP, CITY OF LANSING, INGHAM COUNTY, MICHIGAN

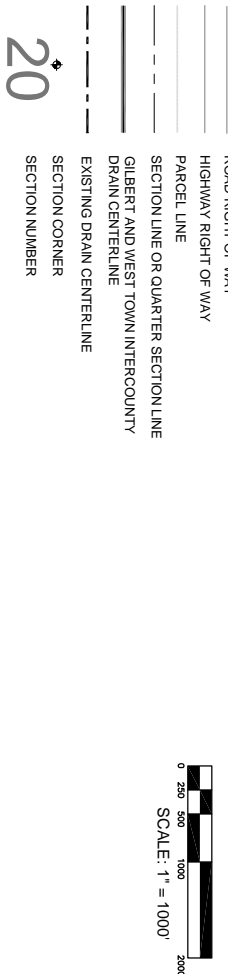


(note to be put in file of adjacent boundary revision)

CONFLICT #	ITEM TO RESOLVE
A	Overlaps between the proposed Gilbert and West Town Intercounty Drain Drainage District and the Grovenburg and Menger Drain Drainage District (both drainage district boundaries shown).
B	Various gaps and overlaps between the proposed Gilbert and West Town Intercounty Drain Drainage District and the Binkley Drain Drainage District (both drainage district boundaries shown)
C	Various gaps and overlaps between the proposed Gilbert and West Town Intercounty Drain Drainage District and the Allen Drain Drainage District (both drainage district boundaries).
D	Overlap between the proposed Gilbert and West Town Intercounty Drain Drainage District and the Melkvik Drain Drainage District.
E	Overlap between the proposed Gilbert and West Town Intercounty Drain Drainage District and the Corwin Drain Drainage District (Eaton County).
F	Overlap between the proposed Gilbert and West Town Intercounty Drain Drainage District and the Willis-Shaw Drain Drainage District (Eaton County).

LEGEND

- | | |
|--|---|
| | PROPOSED GILBERT AND WEST TOWN INTERCOUNTY DRAIN DRAINAGE DISTRICT |
| | CANDINA ESTATES BRANCH DRAIN DRAINAGE DISTRICT - (Recorded Liber 1864 Page 65) |
| | GILBERT - CHISHOLM HILLS BRANCH DRAIN DRAINAGE DISTRICT - (current Drainage District Description) |
| | GILBERT GLENS BRANCH DRAIN DRAINAGE DISTRICT - (Recorded Liber 1340 Page 495) |
| | GILBERT GROVENBURG WOODS BRANCH DRAIN DRAINAGE DISTRICT - (Recorded Liber 1844 Page 861) |
| | GILBERT HORSTMEYER ESTATES BRANCH DRAIN DRAINAGE DISTRICT - (current Drainage District Description) |
| | GILBERT HOUGHTON HEIGHTS BRANCH DRAIN DRAINAGE DISTRICT - (current Drainage District Description) |
| | GILBERT HOUGHTON HOLLOW BRANCH DRAIN DRAINAGE DISTRICT - (current Drainage District Description) |
| | LANIER BRANCH DRAIN DRAINAGE DISTRICT - (Recorded Liber 1629 Page 231) |
| | LOCH WOODS BRANCH DRAIN DRAINAGE DISTRICT - (Recorded Liber 1873 Page 770) |
| | MELKLIK DEAN DRAINAGE DISTRICT - (Recorded Liber 1973 Page 498) |
| | MELKLIK GROVENBURG FARMS BRANCH DRAIN DRAINAGE DISTRICT - (Recorded Liber 2899 Page 1140) |
| | NORTH BRANCH GILBERT DRAIN DRAINAGE DISTRICT - (Recorded Liber 1910 Page 880) |
| | WILLOUGHBY WOODS BRANCH DRAIN DRAINAGE DISTRICT - (Recorded Liber 1919 Page 366) |
| | BARNES DRAIN DRAINAGE DISTRICT - (1998 Drainage District Description) |
| | WATKINS COMMERCE PARK BRANCH DRAIN DRAINAGE DISTRICT - (2000 Drainage District Description) |
| | ALLEN DRAIN DRAINAGE DISTRICT - (1900 Drainage District Description) |
| | ALLEN DRAIN DRAINAGE DISTRICT - (current Drainage District Map) |
| | ALTON DRAIN DRAINAGE DISTRICT - (current Drainage District Description) |
| | ALTON WASHINGTON ROAD BRANCH DRAIN DRAINAGE DISTRICT - (current Drainage District Description) |
| | BINKLEY DRAIN DRAINAGE DISTRICT - (1904 Drainage District Description) |
| | BINKLEY DRAIN DRAINAGE DISTRICT - (current Drainage District Map) |
| | GROVENBURG & MENDER DRAIN DRAINAGE DISTRICT - (1984 Drainage District Map) |
| | GROVENBURG & MENDER DRAIN DRAINAGE DISTRICT - (current Drainage District Map) |
| | MENDER MEADOW RIDGE NO. 3 BRANCH DRAIN DRAINAGE DISTRICT - (Recorded Liber 2978 Page 70) |
| | FAYNE CREEK DRAIN DRAINAGE DISTRICT - (Recorded Liber 841 Page 265) |
| | HETRICK DRAIN DRAINAGE DISTRICT - 2003 - (PROPOSED DISTRICT BOUNDARY) |
| | HETRICK, HILLIARD BRANCH DRAIN DRAINAGE DISTRICT - 1998 |
| | CONCORD VILLAGE BRANCH DRAIN DRAINAGE DISTRICT - (1978 Design Drawings) |
| | CORWIN DRAIN DRAINAGE DISTRICT - (1991 Drain Assessment Roll) |
| | KELLER DRAIN DRAINAGE DISTRICT - (1962 Drainage District Map) |
| | MURRAY DRAIN DRAINAGE DISTRICT - (1997 Drain Assessment Roll) |
| | WILLIS SHAW DRAIN DRAINAGE DISTRICT - (Current Drain Assessment Roll) |
| | WILLIS SHAW DRAIN DRAINAGE DISTRICT - (1998 Drainage District Map) |
| | CITY OF LANSING CORPORATE LIMITS |
| | BOUND RIGHT OF WAY |



= Chiscolm Hills Drain Drainage District includes No. 1, No. 2, No. 3, and No. 4 plats, even though all areas are not described all together to being within the district boundary (individually described as part of district boundary)

= Loch Woods Drain Drainage District also includes lands added in: Liber 993 Page 294 & Liber 2075 Page 908 (including Moorwood Farms plats)

CONFLICT MAP

NO.	REVISIONS	BY	DATE	Drawn By
				REO
				Date
				05/11/04
				Approved By
				Date
REVISED IN ACCORDANCE WITH CONSTRUCTION RECORDS		By	Date	



GILBERT & WEST TOWN INTERCOUNTY
DRAIN DRAINAGE DISTRICT

DELHI TOWNSHIP, CITY OF LANSING, INGHAM COUNTY
& WINDSOR TOWNSHIP, EATON COUNTY, MICHIGAN

PROJECT NO.
02003

SHEET NO.

APPENDIX N