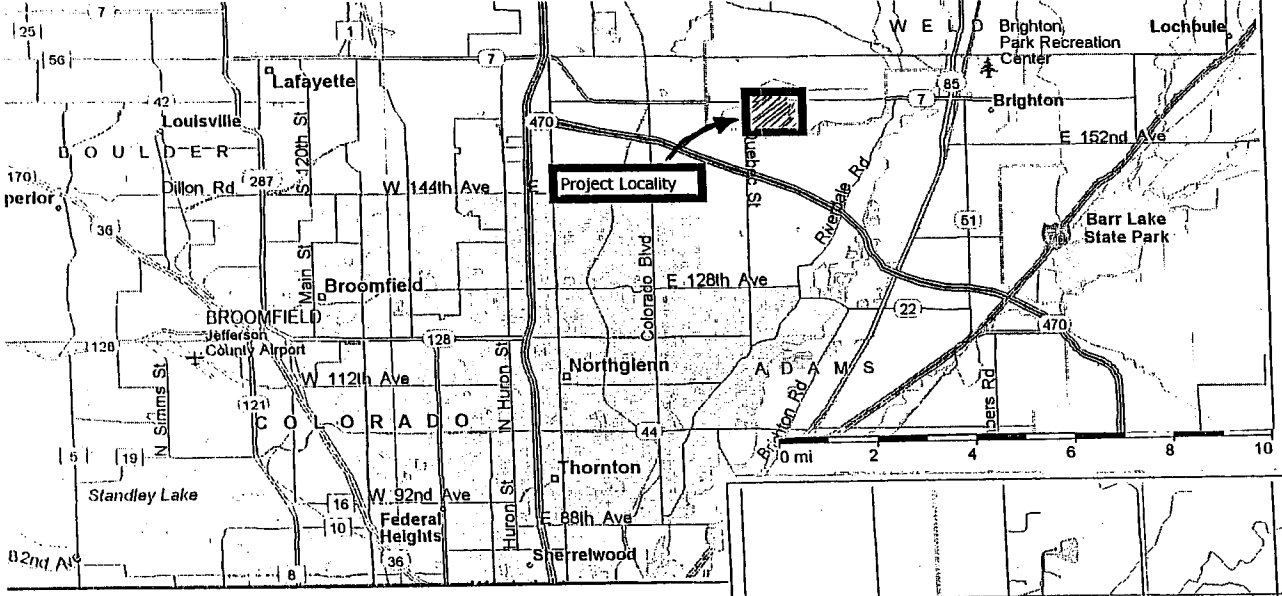
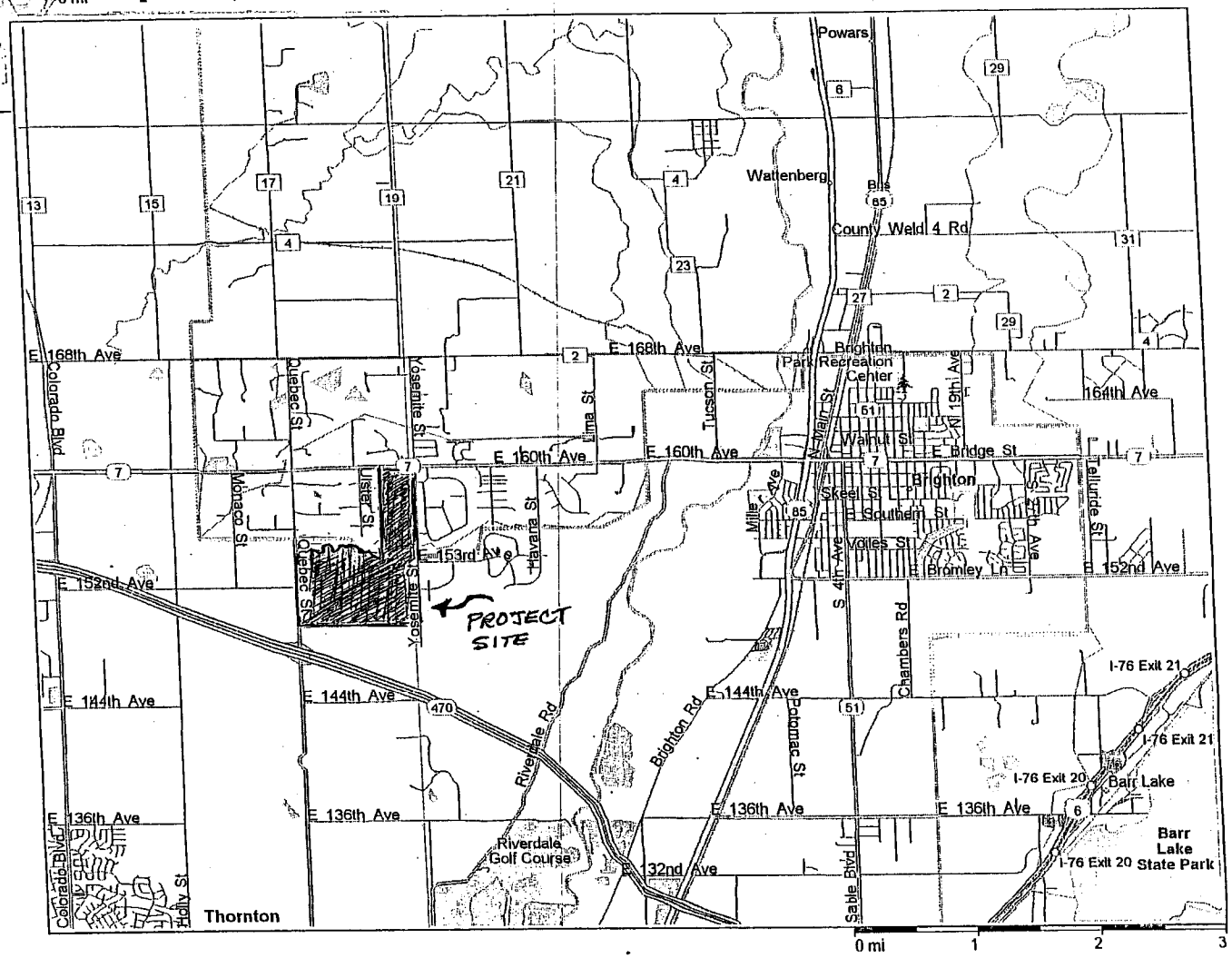
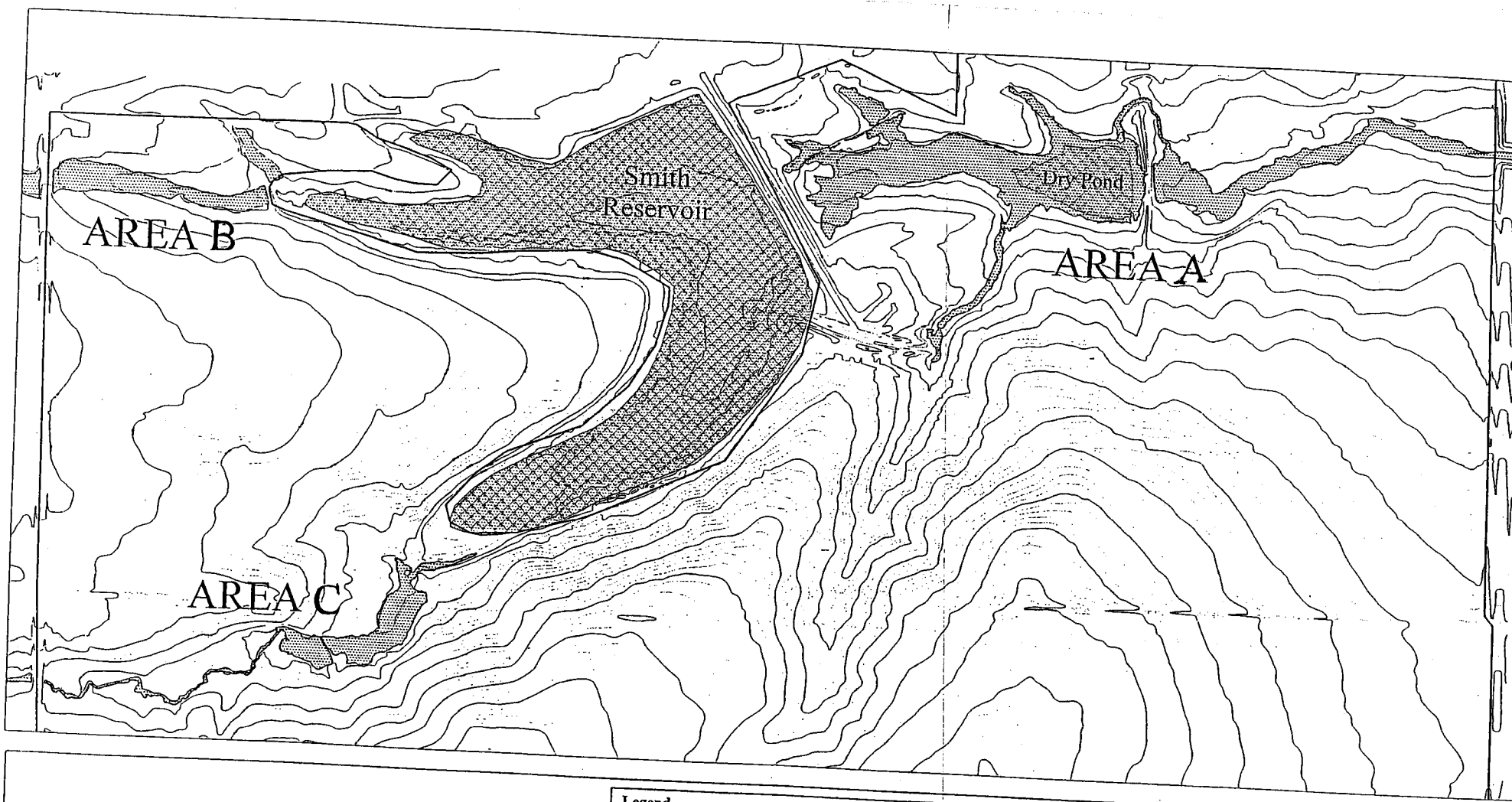
200280338
30 Sept 2003
Sheet 1 of 17






SWCA

Wetlands Data Provided By:
SWCA Environmental Consultants
8461 Turnpike Drive, Suite 100
Westminster, CO 80031

Map Data Provided By:
Land Architects
2681 W. Alamo Ave.
Littleton, CO 80120

**Legend**

- PROJECT BOUNDARY
- EXISTING 5' CONTOUR LINE
- EXISTING 1' CONTOUR LINE
- JURISDICTIONAL WATERS
- DRY POND/RESERVOIR

125 0 350
SCALE: 1" = 350'

Area of Detail

**Jurisdictional Waters of the U.S, Heritage Todd Creek, Adams County, Colorado.**

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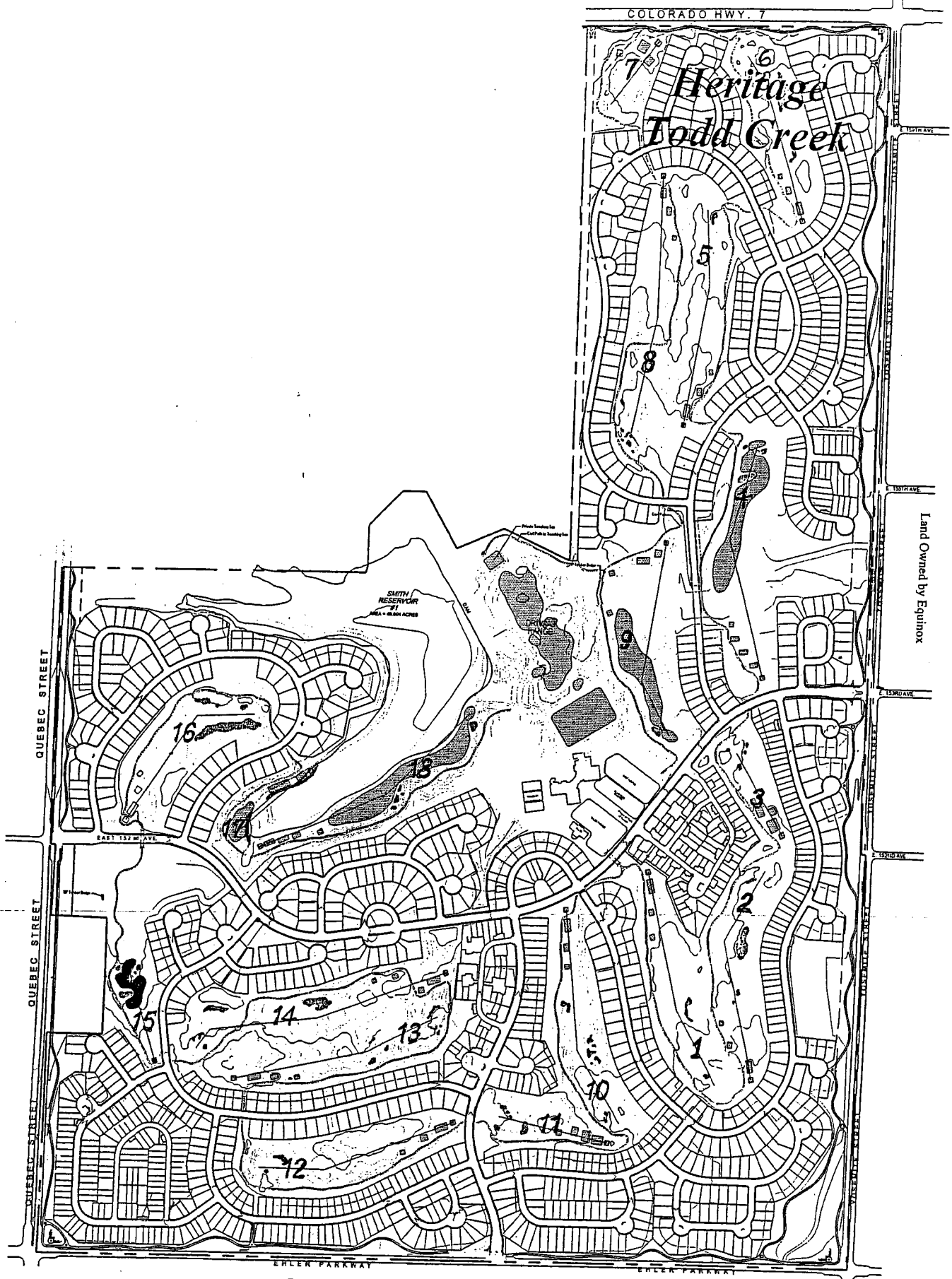
Sheet 2 of 17

Lakeview Estates




PROPOSED CONDITIONS

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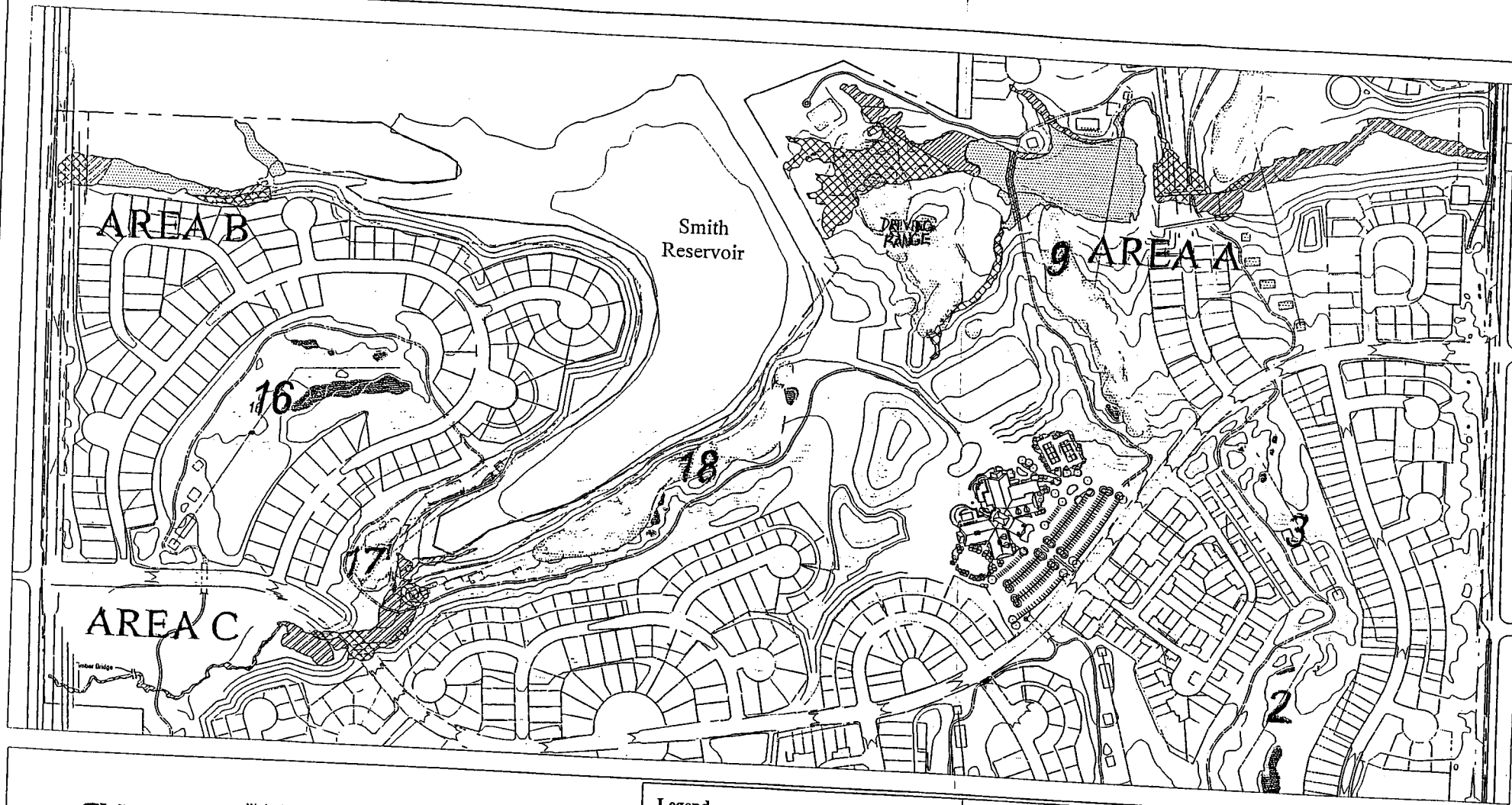
Sheet 3 of 17

**Legend**

PROPERTY BOUNDARY

LOT LINE




SWCA

Wetlands and Impact Data Provided By:
SWCA Environmental Consultants
8461 Turnpike Drive, Suite 100
Westminster, CO 80031

Other Map Data Provided By:
Land Architects
Acklam Associates, Inc.
Arthur Hills/Steve Forest

**Legend**

- PROJECT BOUNDARY
- NON IMPACTED JURISDICTIONAL WATERS
- PERMANENT IMPACT
- WETLAND RELOCATION

175 0 350
SCALE: 1" = 350'

Area of Detail

Impact to Jurisdictional Waters, Heritage Todd Creek, Adams County, Colorado.

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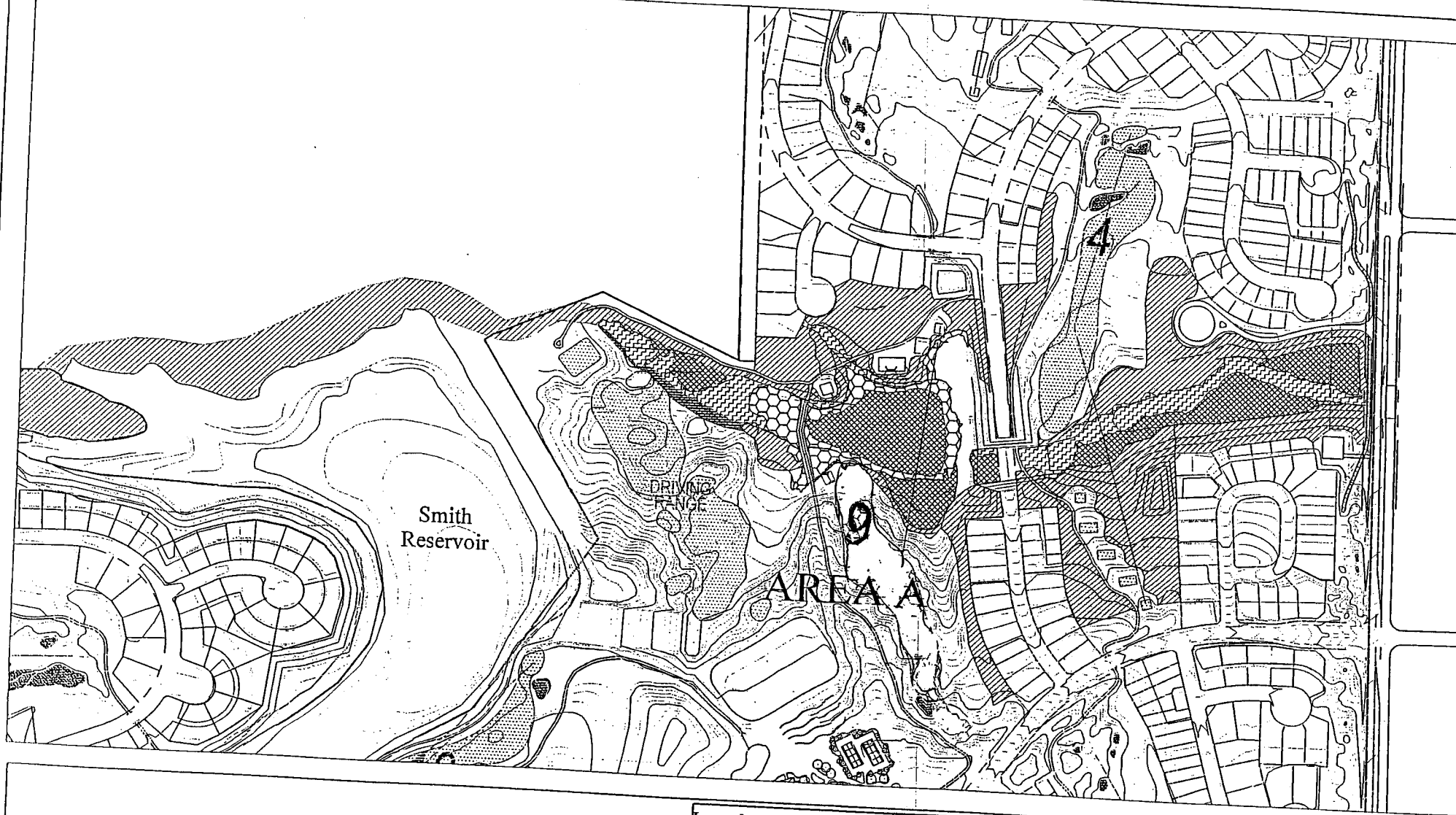
Sheet 4 of 17




SWCA

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Westminster, CO 80031

Other Map Data Provided By:
Land Architects
Acklam Associates, Inc.
Arthur Hills/Steve Forest

**Legend**

- PROJECT BOUNDARY
- NON IMPACTED WATERS
- WETLAND CREATION
- WETLAND RELOCATION
- RESTORED UPLAND VEGETATION
- GOLF COURSE BUFFER

125 0 250
SCALE: 1" = 250'

**Map of Proposed Mitigation Area A, Heritage Todd Creek, Adams County, Colorado.**

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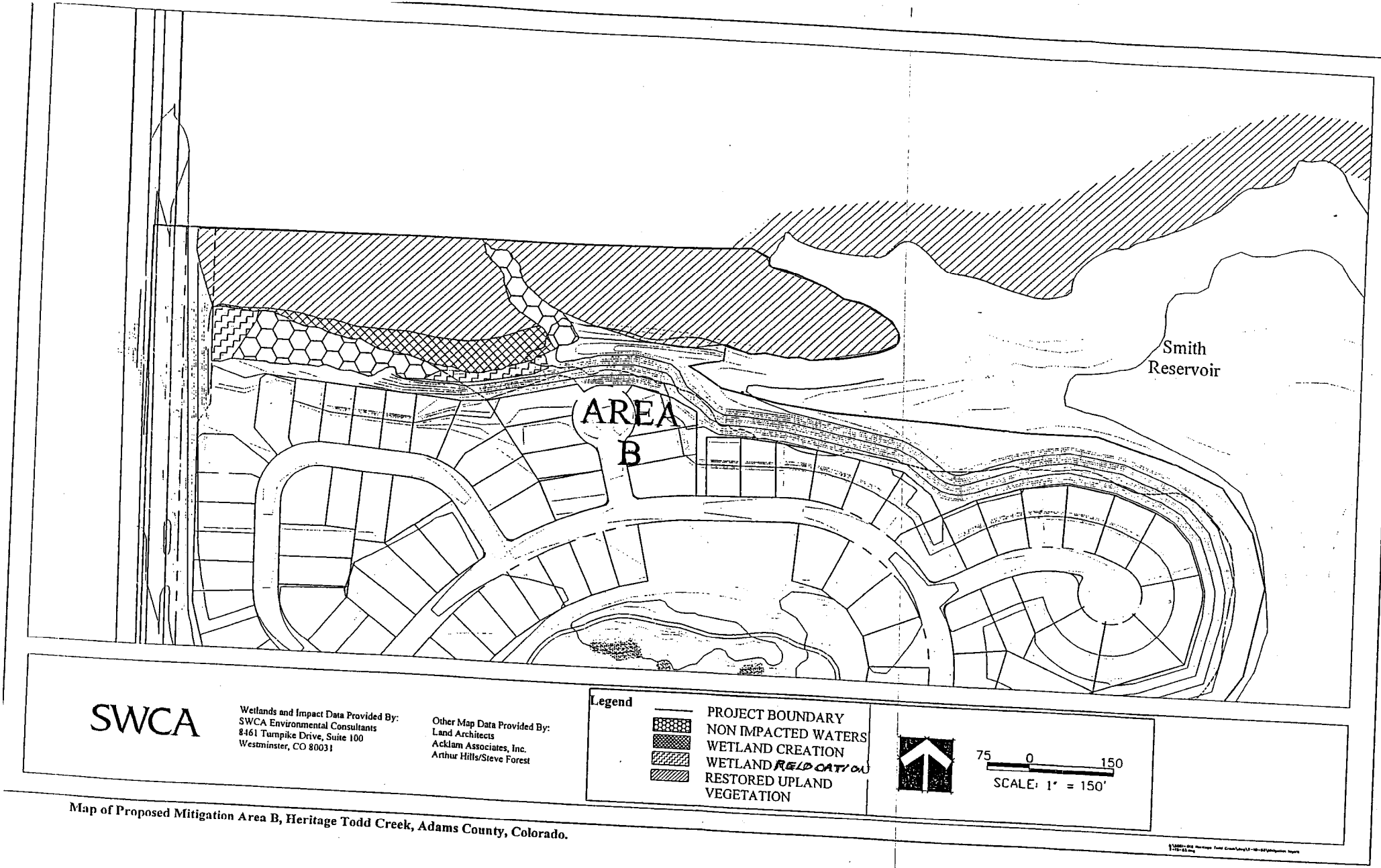
Sheet 5 of 17




Map of Proposed Mitigation Area B, Heritage Todd Creek, Adams County, Colorado.

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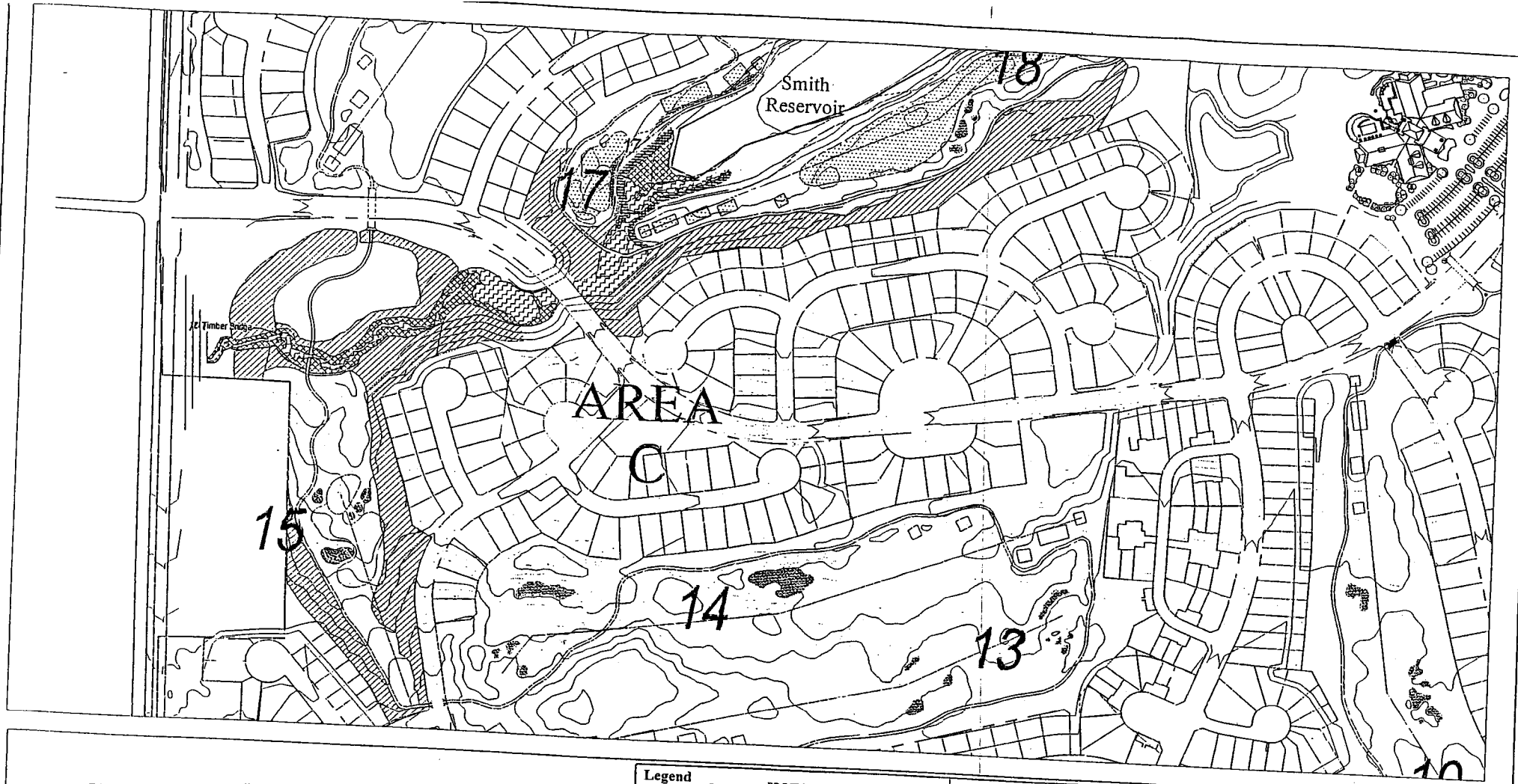
Sheet 6 of 17




SWCA

Wetlands and Impact Data Provided By:
SWCA Environmental Consultants
8461 Turnpike Drive, Suite 100
Westminster, CO 80031

Other Map Data Provided By:
Land Architects
Acklam Associates, Inc.
Arthur Hills/Steve Forest

**Legend**

- PROJECT BOUNDARY
- NON IMPACTED WATERS
- WETLAND CREATION
- WETLAND RELOCATION
- RESTORED UPLAND VEGETATION
- GOLF COURSE BUFFER

125 0 250
SCALE: 1" = 250'

Map of Proposed Mitigation Area C, Heritage Todd Creek, Adams County, Colorado.

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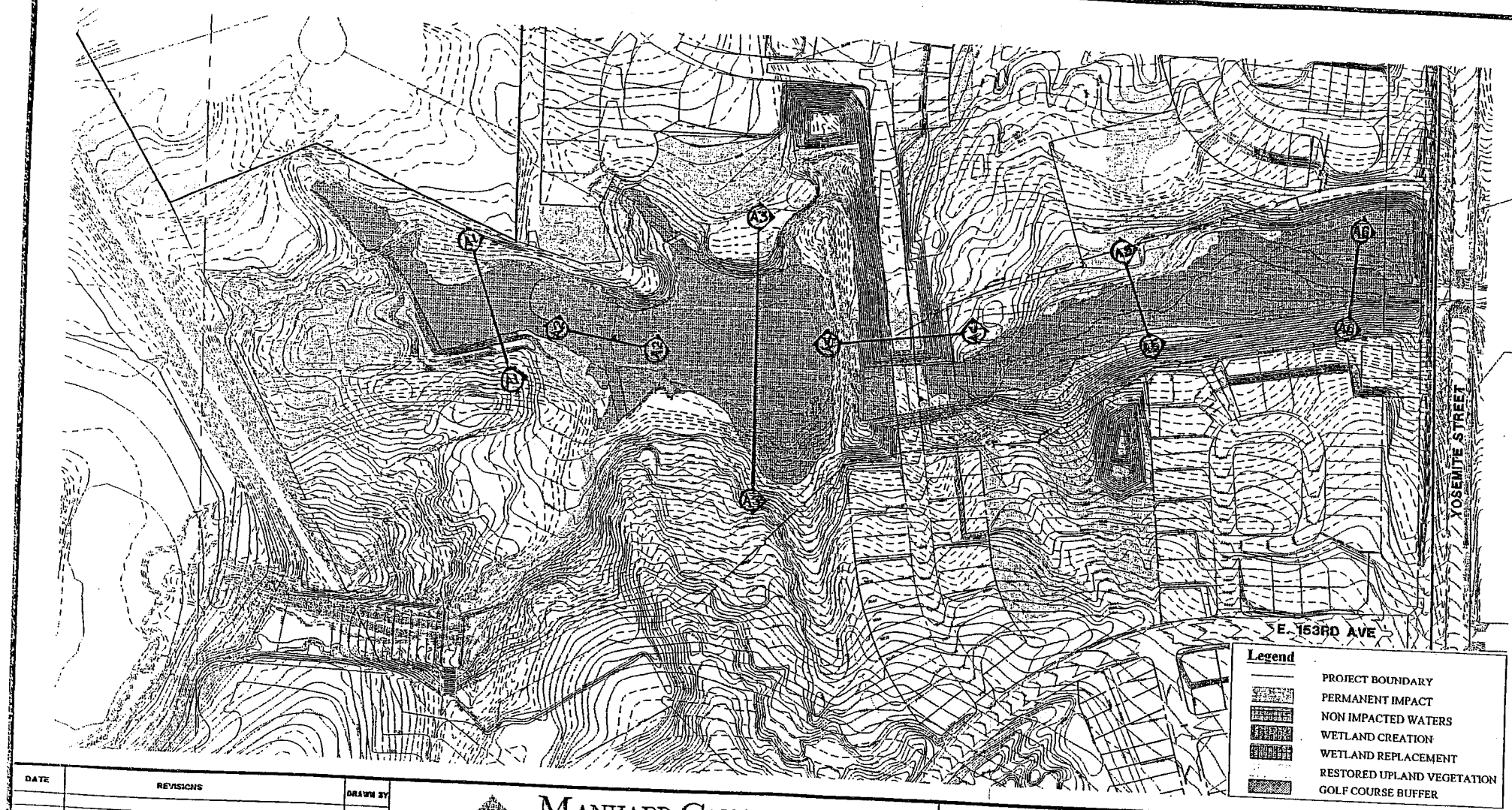
Sheet 7 of 17




| DATE | REVISIONS | DRAWN BY |
|---|---|---|
| | | |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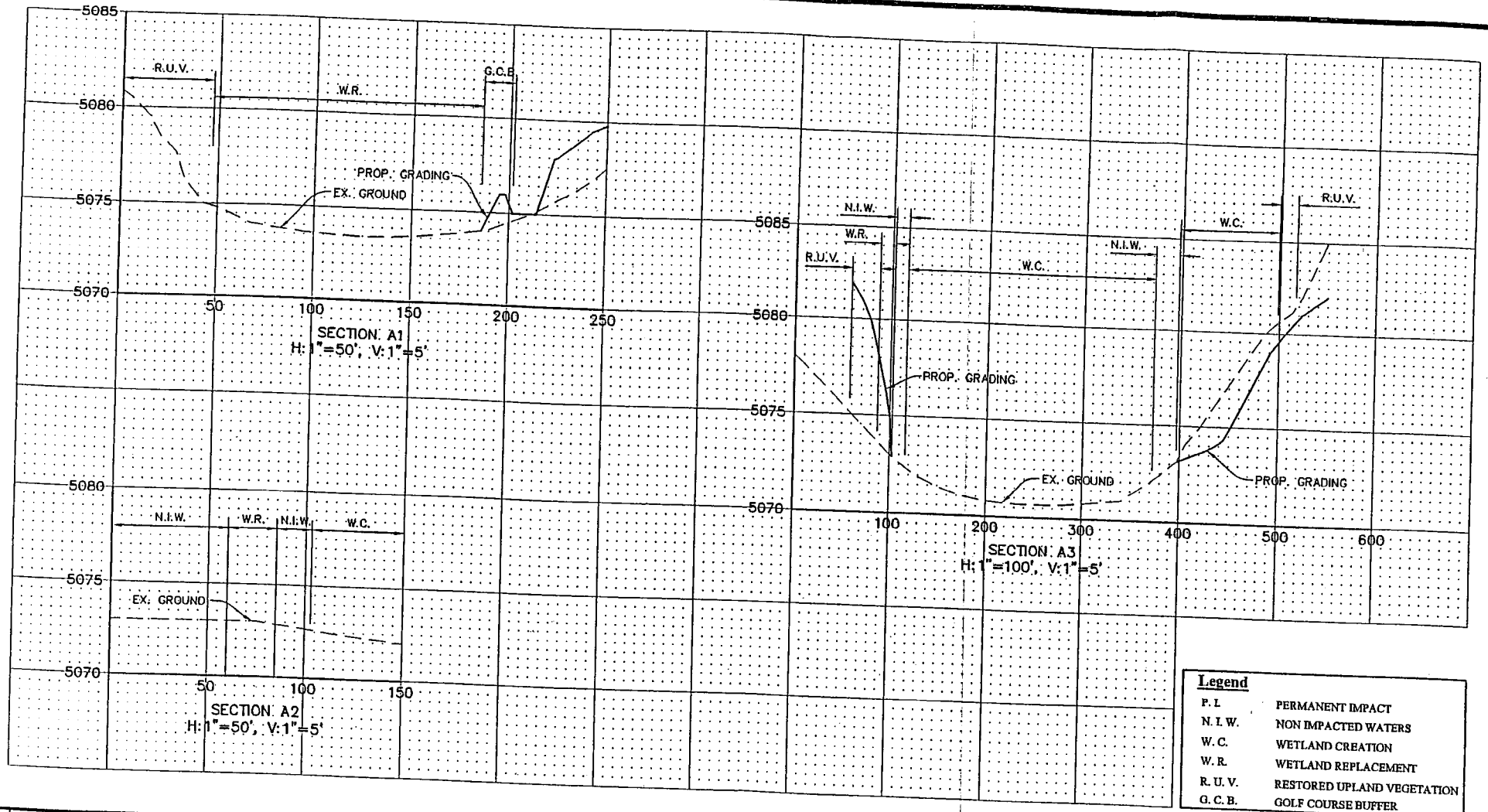
**WETLAND CROSS-SECTION EXHIBIT - AREA A**

**HERITAGE TODD CREEK - ADAMS COUNTY, COLORADO**

| | | |
|---|---|---|
| DRAWN BY: M.A.L. | RELEASE DATE: 9-12-03 | SCALE: 1"=200' |
| LOT NO. | CODE: EGHTC | PROJECT: C391 |

Sept 12, 2003 - 08:45 Dwg Name: P:\Eghtc\dwg\Eng\Final Drawings\Exhibits Eng\Wetland Cross-Section Key.dwg

200280338
30 Sept 2003
Sheet 8 of 17




**Legend**

| | |
|---|---|
| P. I. | PERMANENT IMPACT |
| N. I. W. | NON IMPACTED WATERS |
| W. C. | WETLAND CREATION |
| W. R. | WETLAND REPLACEMENT |
| R. U. V. | RESTORED UPLAND VEGETATION |
| G. C. B. | GOLF COURSE BUFFER |

| DATE | REVISIONS | DRAWN BY |
|---|---|---|
| | | |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**WETLAND CROSS-SECTION EXHIBIT - AREA A**

**HERITAGE TODD CREEK - ADAMS COUNTY, COLORADO**

| | | | |
|---|---|---|---|
| DRAWN BY: M.A.L. | RELEASE DATE: 09-12-03 | SCALE: VARIES | |
| LOT NO. CROSS SECTIONS-1 (A1-A3) | CODE: EGHTC | PROJECT: C391 | |

Sept 12, 2003 - 08:55 Dwg Name: P:\Eghtc\dwg\Eng\Final Drawings\Exhibits Eng\Wetland Cross-Sections-1.dwg

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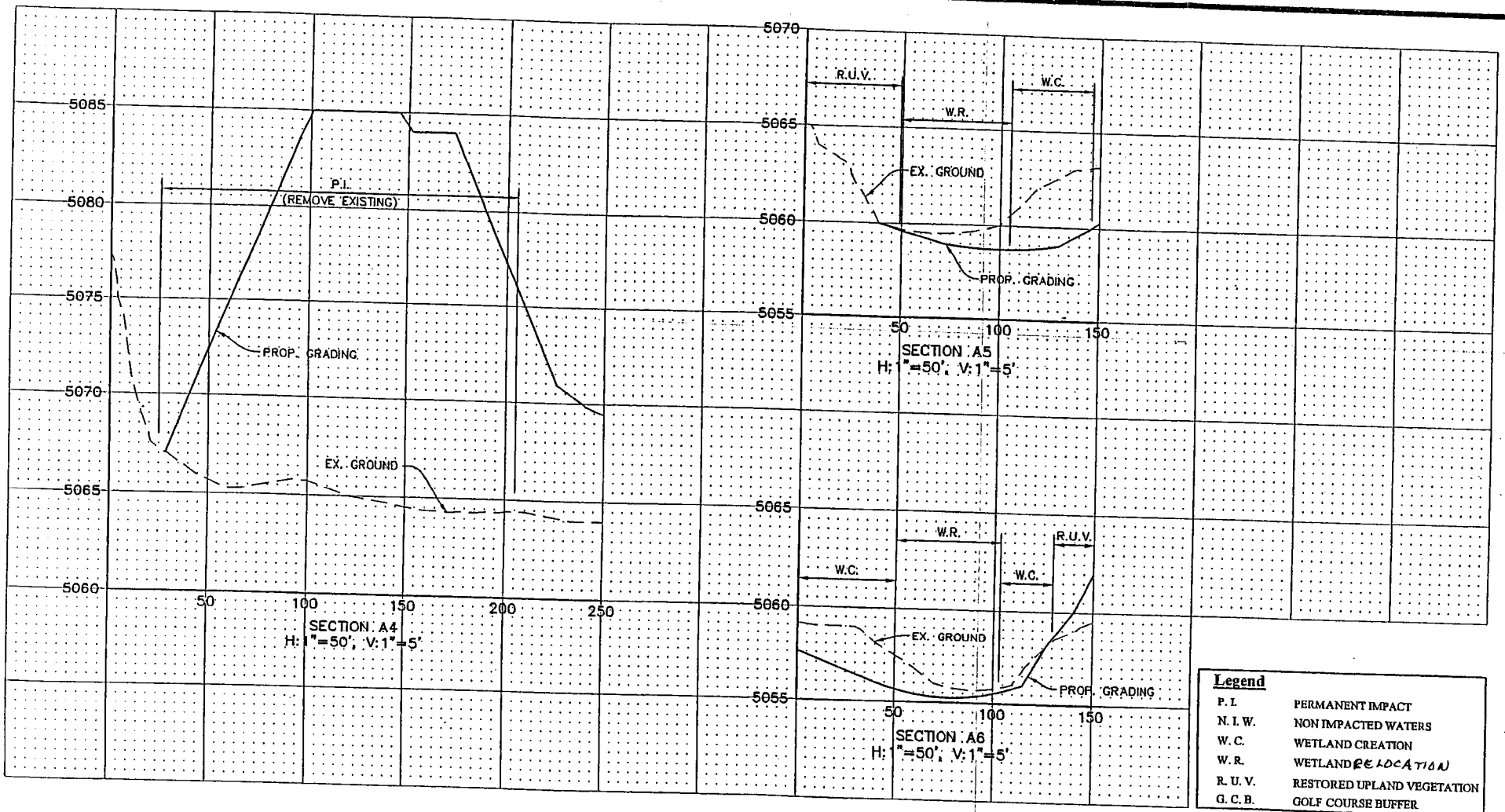


**Legend**

| | |
|---|---|
| P. I. | PERMANENT IMPACT |
| N. I. W. | NON IMPACTED WATERS |
| W. C. | WETLAND CREATION |
| W. R. | WETLAND RELOCATION |
| R. U. V. | RESTORED UPLAND VEGETATION |
| G. C. B. | GOLF COURSE BUFFER |

| DATE | REVISIONS | DRAWN BY |
|---|---|---|
| | | |

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**WETLAND CROSS-SECTION EXHIBIT - AREA A**

**HERITAGE TODD CREEK - ADAMS COUNTY, COLORADO**

| | | | |
|---|---|---|---|
| DRAWN BY: M.A.L. | RELEASE DATE: 09-12-03 | SCALE: H:1"=50', V:1"=5' | |
| LOT NO. CROSS SECTIONS-2 (A4-A6) | CODE: EGHTC | PROJECT: C391 | |

Sept 12, 2003 - 08:58 Dwg Name: P:\Eghtc\dwg\Eng\Final Drawings\Exhibits Eng\Wetland Cross-Sections-2.dwg Updated By: milivok

200280338
30 Sept 2003
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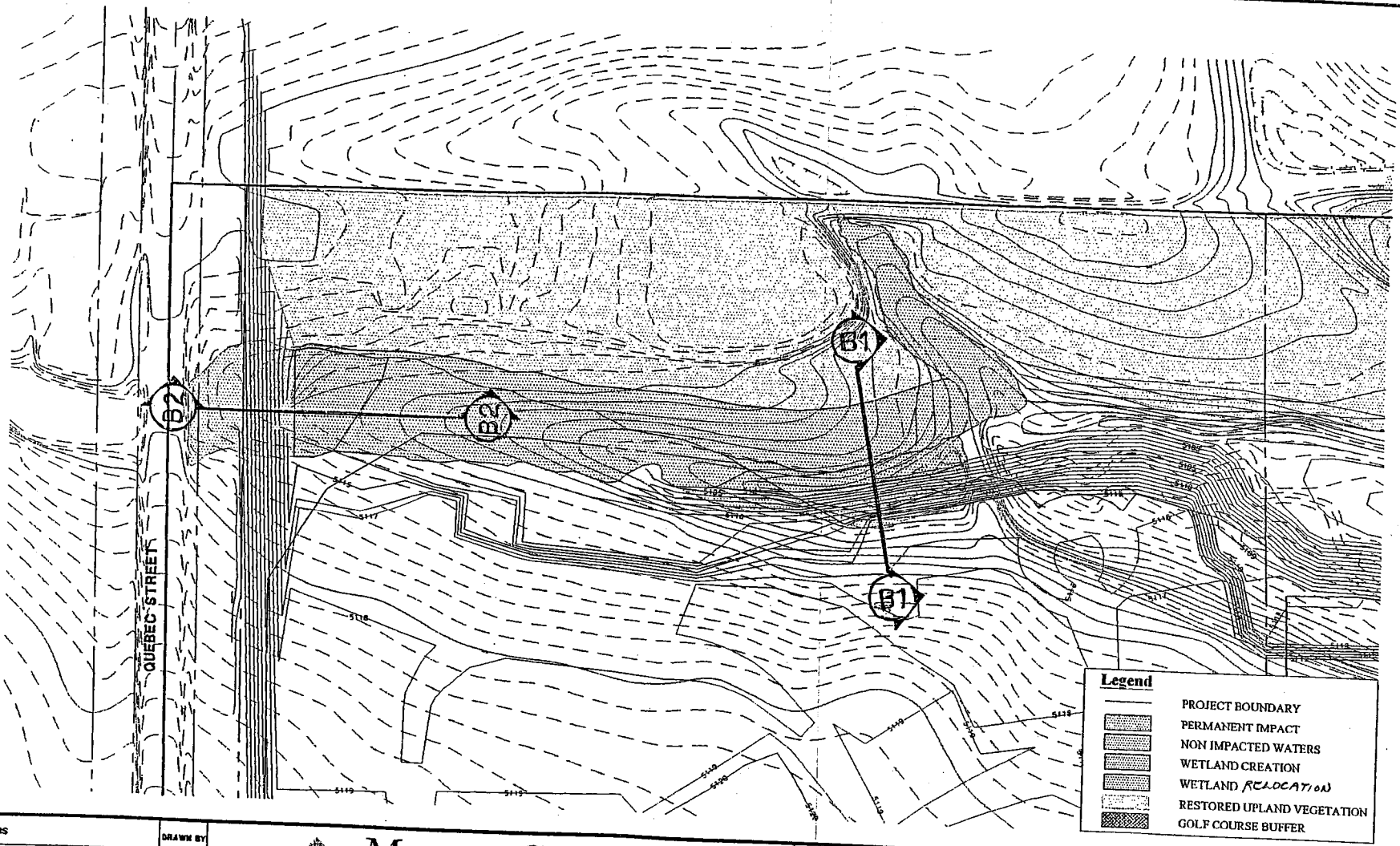


| DATE | REVISIONS | DRAWN BY |
|---|---|---|
| | | |


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**WETLAND CROSS-SECTION MAP - AREA B**

**HERITAGE TODD CREEK - ADAMS COUNTY, COLORADO**

| DRAWN BY: M.A.L. | RELEASE DATE: 9-12-03 | SCALE: 1"=100' |
|---|---|---|
| LOT NO. | CODE: EGHTC | PROJECT: C391 |

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30 Sept 2003
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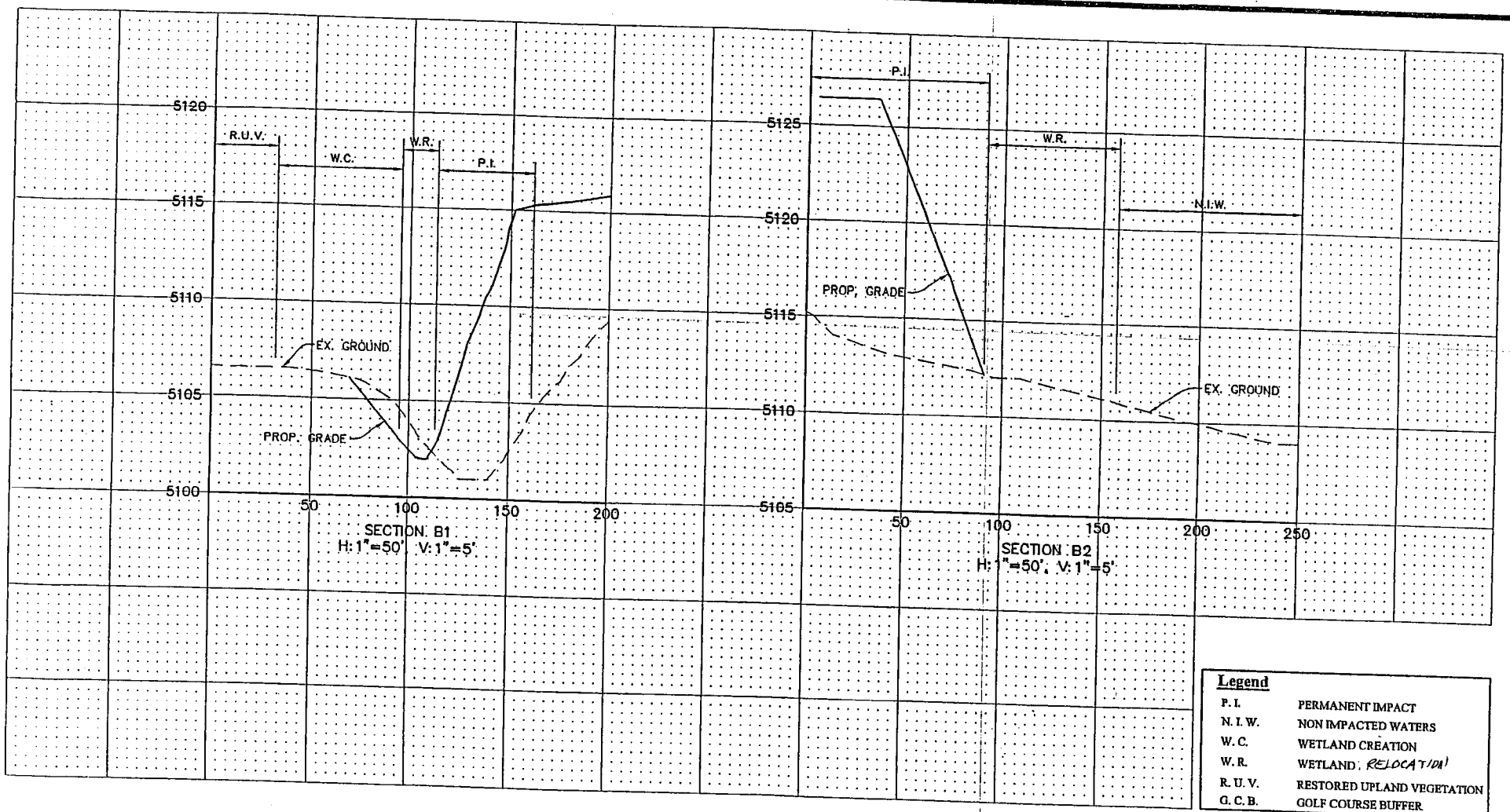


**Legend**

| | |
|---|---|
| P. I. | PERMANENT IMPACT |
| N. I. W. | NON IMPACTED WATERS |
| W. C. | WETLAND CREATION |
| W. R. | WETLAND RELOCATION |
| R. U. V. | RESTORED UPLAND VEGETATION |
| G. C. B. | GOLF COURSE BUFFER |

| DATE | REVISIONS | DRAWN BY |
|---|---|---|
| | | |

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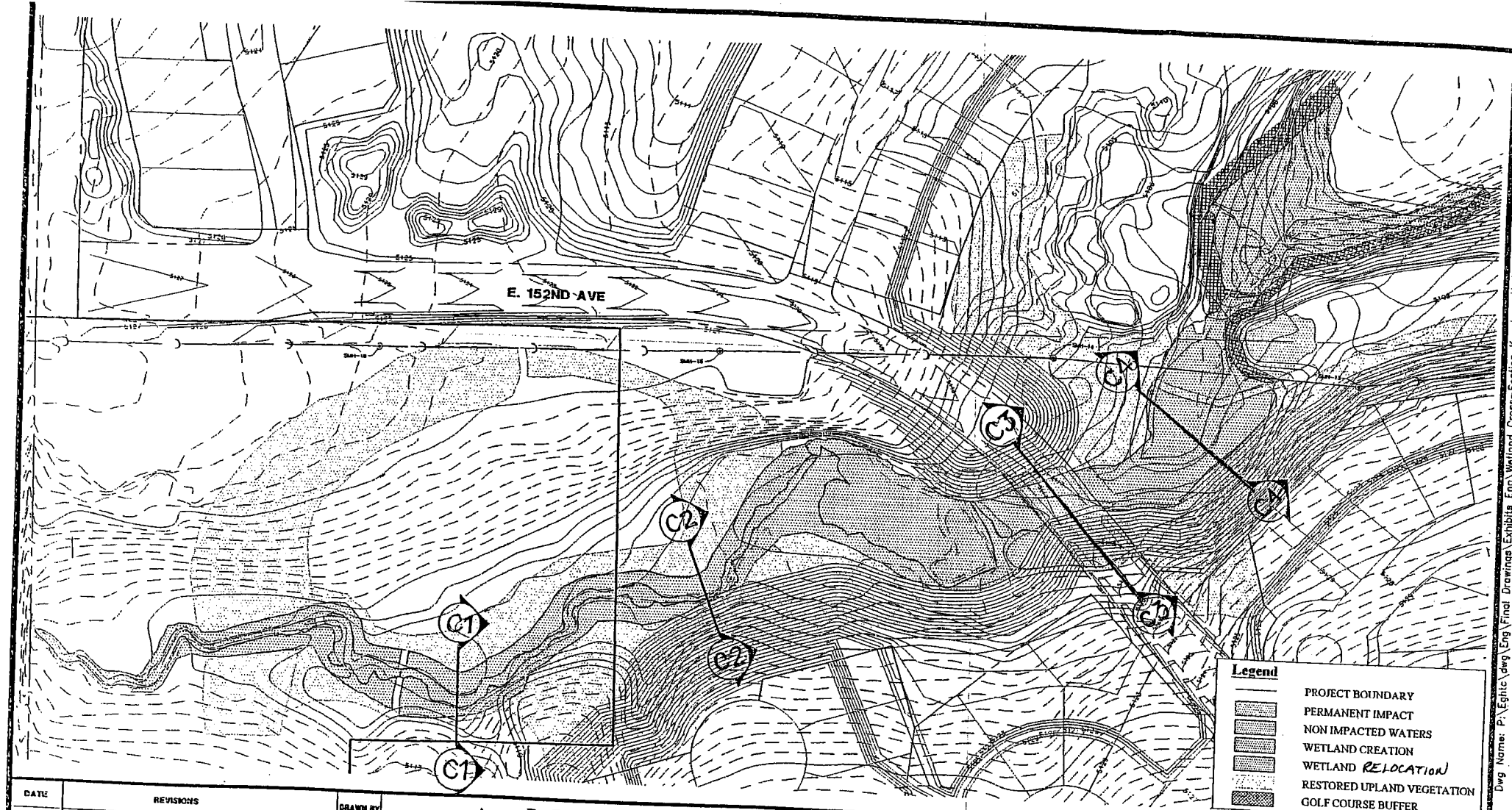
**WETLAND CROSS-SECTION EXHIBIT - AREA B**

**HERITAGE TODD CREEK - ADAMS COUNTY, COLORADO**

| | | | |
|---|---|---|---|
| DRAWN BY: M.A.L. | RELEASE DATE: 09-12-03 | SCALE: H:1"=50', V:1"=5' | |
| LOT NO. CROSS SECTIONS-3 (B1-B2) | CODE: EGHTC | PROJECT: C391 | |

Sept. 12, 2003 - 09:00 Dwg Name: P:\Eghtc\dwg\Eng\Final Drawings\Exhibits Eng\Wetland Cross-Sections-3.dwg Updated By: mlitvak

200280338
30 Sept 2003
Sheet 12 of 17




| DATE | REVISIONS | DRAWN BY |
|---|---|---|
| | | |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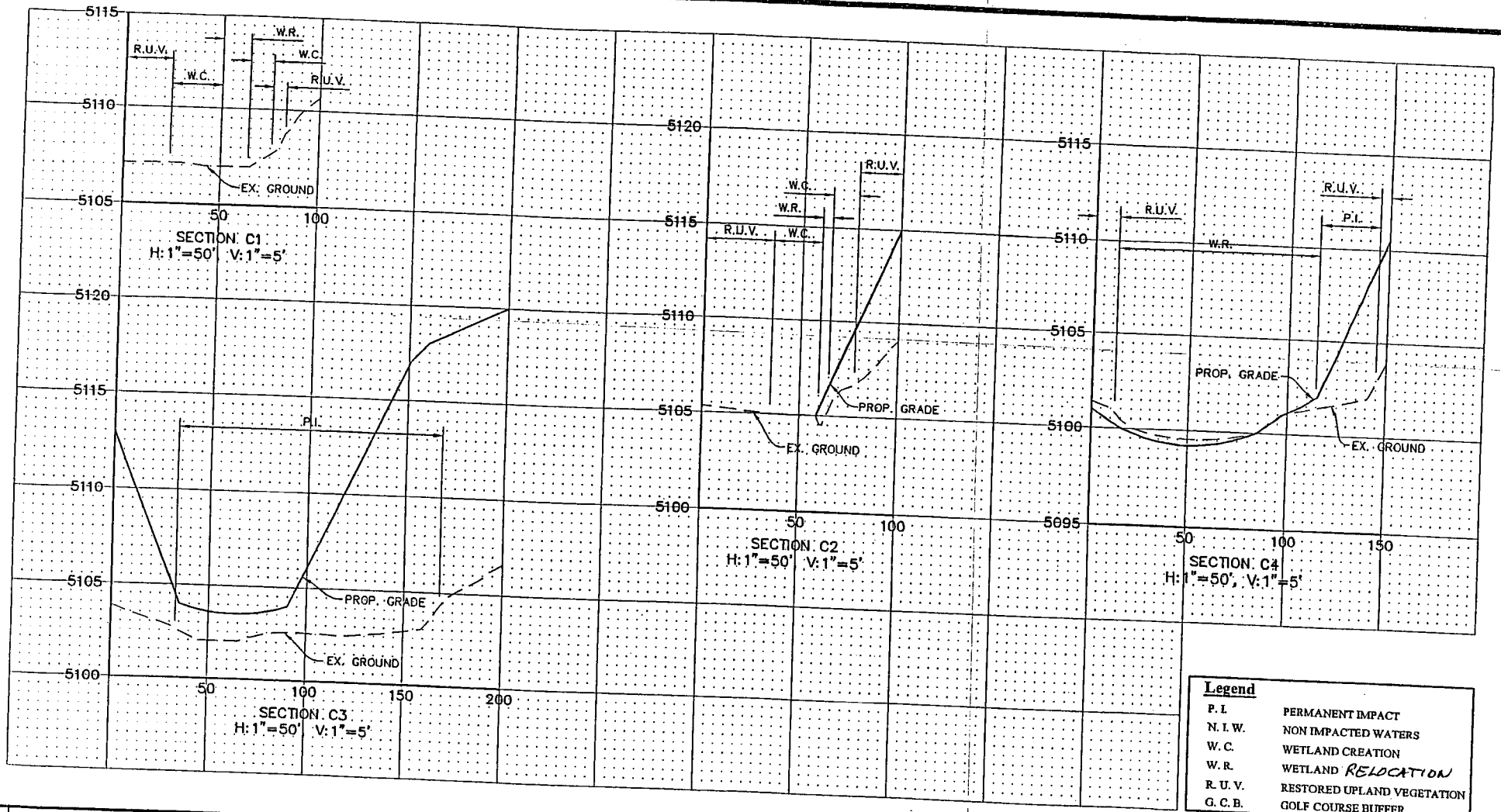
**WETLAND CROSS-SECTION EXHIBIT - AREA C**

**HERITAGE TODD CREEK - ADAMS COUNTY, COLORADO**

| DRAWN BY: M.A.L. | RELEASE DATE: 9-12-03 | SCALE: 1"=100' |
|---|---|---|
| LOT NO. | CODE: EGHTC | PROJECT: C391 |

Sept 12, 2003 - 08:43 Dwg Name: P:\Eghtc\dwg\Eng\Final Drawings\Exhibits Eng\Wetland Cross-Section

200280338
30 Sept 2003
Sheet 13 of 17




**Legend**

| | |
|---|---|
| P. I. | PERMANENT IMPACT |
| N. I. W. | NON IMPACTED WATERS |
| W. C. | WETLAND CREATION |
| W. R. | WETLAND RELOCATION |
| R. U. V. | RESTORED UPLAND VEGETATION |
| G. C. B. | GOLF COURSE BUFFER |

| DATE | REVISIONS | DRAWN BY |
|---|---|---|
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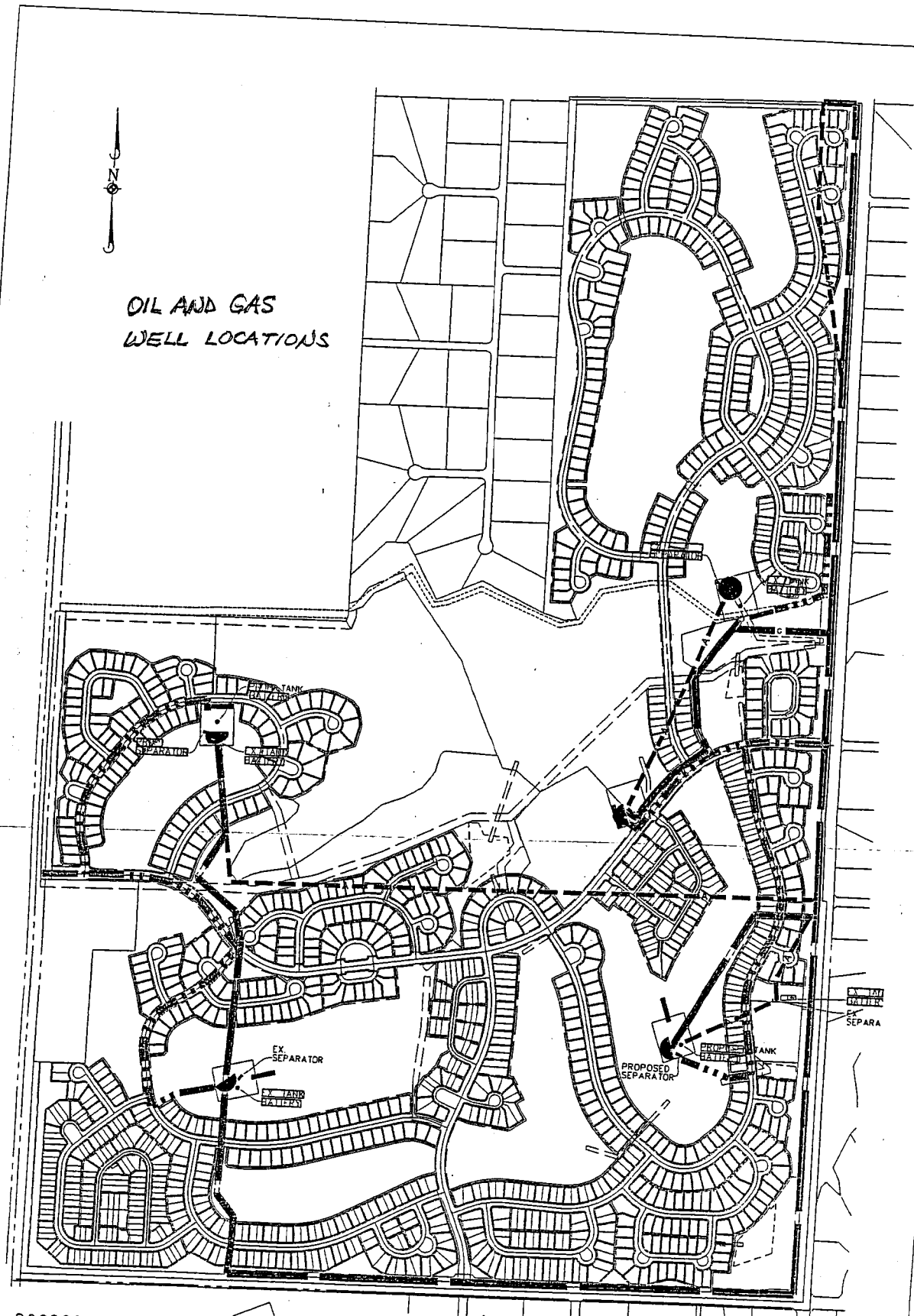
**WETLAND CROSS-SECTION EXHIBIT - AREA C**

**HERITAGE TODD CREEK - ADAMS COUNTY, COLORADO**

| | | | |
|---|---|---|---|
| DRAWN BY: M.A.L. | RELEASE DATE: 09-12-03 | SCALE: H:1"=50', V:1"=5' | |
| LOT NO. CROSS SECTIONS-4 (C1-C4) | CODE: EGHTC | PROJECT: C391 | |

Sept 12, 2003 - 09:02 Dwg Name: P:\Eghtc\dwg\Eng\Final Drawings\Exhibits Eng\Wetland Cross-Sections-4.dwg Updated By: milsonb

200280338
30 Sept 2003
Sheet 14 of 17




200280338
30 Sept 2003
Sheet 15 of 17

= OIL AND GAS OPERATIONS AREA
= FRAC TANK
= 75' RADIUS–POTENTIAL TWINNED WELL
= ACCESS ROUTE
G = FUTURE/FINAL GAS LOC.
A = ABANDONED GAS

Estimated Impacts from the Proposed Project to Wetlands on the Heritage Todd Creek Property.

| Type of Activity | Type of Impact | Acres | Location |
|---|---|---|---|
| Residential lots | Permanent | 0.004 | Wetland |
| Road crossings and widening | " | 0.94 | Drainage |
| Landscaped golf course | " | 2.61 | Wetland and drainage |
| Golf cart paths | " | 0.03 | Wetland and drainage |
| Floodplain grading | " | 0.27 | Wetland and drainage |
| Cart path grading | " | 0.15 | Wetland and drainage |
| Golf course grading | " | 0.14 | Wetland and drainage |
| Road grading | " | 1.89 | Drainage |
| Wetland and floodplain grading and restoration | " | 2.99 | Wetland and drainage |
| | **Total Impacts** | **9.03** | |

**Impact by Wetland Area**

| Area | Type of Impact | Acres | Cause of Impact |
|---|---|---|---|
| A | Permanent | 3.16 | Driving range, lots, road, and grading |
| | | 3.22 | Cart path, grading, golf course, and road |
| B | Permanent | 0.46 | Grading and road |
| | | 0.28 | Grading |
| C | Permanent | 0.57 | Cart path, golf course, road, and grading |
| | | 1.34 | Grading, road, and wetland expansion |
| **Total Permanent** | **Impact** | **9.03** | |

**Estimated Wetlands Mitigation Acreage on the Heritage Todd Creek Property.**

| Area to be Mitigated | Type of Mitigation | Acres |
|---|---|---|
| Area A | Expansion/creation | 3.23 |
| | Direct Relocation | 3.22 |
| Area B | Expansion/creation | 0.57 |
| | Direct Relocation | 0.28 |
| Area C | Expansion/creation | 1.19 |
| | Direct Relocation | 1.34 |
| | **Total Mitigation Acres** | **9.83** |

Wetland Herbaceous Species for Potential Use in Mitigation of the Heritage Todd Creek Property.

| Common Name | Scientific Name | % Composition |
|---|---|---|
| Torrey rush | *Juncus torreyi* | 20 |
| American three-square | *Schoenoplectus pungens* | 20 |
| Softstem bulrush | *Schoenoplectus tabernaemontani* | 20 |
| Nebraska sedge | *Carex nebrascensis* | 10 |
| Rocky Mountain iris | *Iris missouriensis* | 10 |
| Baltic rush | *Juncus balticus* | 10 |
| Creeping spikerush | *Eleocharis palustris* | 10 |
| | **Total** | **100** |

**Wetland/Riparian Shrub and Tree Species for Potential Use in Mitigation of the Heritage Todd Creek Property.**

| Common Name | Scientific Name | Type/Minimum Spacing |
|---|---|---|
| Coyote willow | *Salix exigua* | Cuttings/18 inches |
| Peach-leaf willow | *Salix amygdaloides* | Cuttings or 5-gallon/12 feet |
| Plains cottonwood | *Populus deltoides sargentii* | Cuttings or 5-gallon/12 feet |
| Alder | *Alnus incana* | 5-gallon/12 feet |
| Chokecherry | *Prunus virginiana melanocarpa* | 5-gallon/5 feet |
| Hawthorn | *Crataegus erythropoda* | 5-gallon/5 feet |

**Upland Herbaceous Species for Potential Use in Wildlife Corridor on the Heritage Todd Creek Property.**

| Common Name | Scientific Name | Minimum Seeding Rate (PLS lbs./ac.) |
|---|---|---|
| Switch grass | *Panicum virgatum* | 3 |
| Yellow Indiangrass | *Sorghastrum nutans* | 5 |
| Big bluestem | *Andropogon gerardi* | 6 |
| Sideoats grama | *Bouteloua curtipendula* | 4 |
| Sand dropseed | *Sporobolus cryptandrus* | 1 |
| Blue grama | *Bouteloua gracilis* | 2 |
| Canada wildrye | *Elymus Canadensis* | 11 |
| Western wheatgrass | *Pascopyrum smithii* | 8 |
| Indian ricegrass | *Achnatherum hymenoides* | 6 |

PLS = pure live seed

**Upland Shrub Species for Potential Use in Wildlife Corridor on the Heritage Todd Creek Property.**

| Common Name | Scientific Name | Planting Rate (plants per acre) |
|---|---|---|
| Plains Cottonwood | *Populus deltoids sargentii* | 10 |
| Hawthorn | *Crateagus* spp. | 200 |
| Chokecherry | *Prunus virginiana* | 200 |
| Skunkbrush | *Rhus trilobata* | 200 |
| Shrubby cinquefoil | *Potentilla fruticosa* | 200 |
| Wild rose | *Rosa woodsii* | 500 |
| Golden currant | *Ribes aureum* | 500 |

Note: 500 plants of any combination may be used to cover 1 acre.