Boulder County

# Land Use

Courthouse Annex • 2045 13th Street • Boulder, Colorado 80302 • Tel: 303.441.3930 • Fax: 303.441.4856
**Mailing Address:** P.O. Box 471 • Boulder, Colorado 80306 • **www.bouldercounty.org**

**MEMO TO:** Agencies and Adjacent Property Owners
**FROM:** Christian Martin, CFM, Planner II – Flood Recovery
**DATE:** October 17, 2016
**RE:** Docket LU-16-0029

**Docket LU-16-0029: Little Thompson Watershed Coalition - N83rd Street**

Request: Limited Impact Special Use review for a stream restoration project on a 2,100 linear feet stretch of the Little Thompson River upstream of the N83rd Street bridge consisting of 31,600 cubic yards of earthworks.

Location: Parcels 120506000029, 120506000006, 120506000007, 120506000008, 120506000009, 120506000013, 120506000015, 120506000024, located at Little Thompson River upstream of the N83rd Street bridge, in Section 6, T3N, R69W.

Zoning: Agricultural (A) Zoning District

Applicant: Allison Hamm, Little Thompson Watershed Coalition

Limited Impact Special Review is required of proposed uses that may have greater impacts on services, neighborhoods, or the environment than those allowed by right under the Boulder County Land Use Code. This process will review conformance of the proposed use with the Boulder County Comprehensive Plan and the Land Use Code.

This process includes a public hearing before the Board of County Commissioners. Adjacent property owners and holders of liens, mortgages, easements or other rights in the subject property are notified of this hearing. The Land Use staff and County Commissioners value comments from individuals and referral agencies. Please check the appropriate response below or send a letter. Late responses will be reviewed as the process permits; all comments will be made part of the public record and given to the applicant. Only a portion of the submitted documents may have been enclosed; you are welcome to review the entire file at the Land Use Department. If you have any questions regarding this application, please contact me at (303) 441-3930 or cpmartin@bouldercounty.org.

Please return responses to the above address by **November 1, 2016.**

_____ We have reviewed the proposal and have no conflicts.
_____ Letter is enclosed.

Signed_____ PRINTED Name_____

Agency or Address _____

## Boulder County Land Use Department

Courthouse Annex Building
2045 13th Street • PO Box 471 • Boulder, Colorado 80302
Phone: 303-441-3930 • Fax: 303-441-4856
Email: planner@bouldercounty.org
Web: www.bouldercounty.org/lu
Office Hours: Mon., Wed., Thurs., Fri. 8 a.m. to 4:30 p.m.
Tuesday 10 a.m. to 4:30 p.m.


| Shaded Areas for Staff Only |
|---|
| Intake Stamp |

# Application Form

| Project Number | | Project Name | |
|---|---|---|---|
| ☒ Limited Impact Special Use<br>☐ Limited Impact Special Use Waiver<br>☐ Modification of Special Use<br>☐ Site Plan Review<br>☐ Site Plan Review Waiver<br>☐ Subdivision Exemption<br>☐ Exemption Plat<br>☐ 1041 State Interest Review<br>☐ Other: | Application Deadline:<br>First Wednesday of the Month<br>☐ Variance<br>☐ Appeal | Application Deadline:<br>Second Wednesday of the Month<br>☐ Sketch Plan<br>☐ Preliminary Plan<br>☐ Final Plat<br>☐ Resubdivision (Replat)<br>☐ Special Use/SSDP | ☐ Rezoning<br>☐ Road/Easement Vacation<br>☐ Location and Extent<br>☐ Road Name Change |

| | | | | |
|---|---|---|---|---|
| Location(s)/Street Address(es) 15623 N 83rd Street (Parcel 120506000013) Longmont, CO 80503 | | | (See 7 additional parcels attached) | |
| Subdivision Name | | | | |
| Lot(s) | Block(s) | Section(s) 06 | Township(s) 3N | Range(s) 69 |
| Area in Acres | Existing Zoning Agricultural | Existing Use of Property | | Number of Proposed Lots |
| Proposed Water Supply | | Proposed Sewage Disposal Method | | |

## Applicants:

| | | | | |
|---|---|---|---|---|
| Applicant/Property Owner Allison Hamm | | | Email Address allison.ltwc@gmail.com | |
| Mailing Address P.O. Box 1413 | | | | |
| City Lyons | State CO | Zip Code 80540 | Phone 303.823.2370 | Fax N/A |
| Applicant/Property Owner/Agent/Consultant | | | Email Address | |
| Mailing Address | | | | |
| City | State | Zip Code | Phone | Fax |

| | | | | |
|---|---|---|---|---|
| Agent/Consultant | | | Email Address | |
| Mailing Address | | | | |
| City | State | Zip Code | Phone | Fax |

## Certification (Please refer to the Regulations and Application Submittal Package for complete application requirements.)

I certify that I am signing this Application Form as an owner of record of the property included in the Application. I certify that the information and exhibits I have submitted are true and correct to the best of my knowledge. I understand that all materials required by Boulder County must be submitted prior to having this matter processed. I understand that public hearings or meetings may be required. I understand that I must sign an Agreement of Payment for Application processing fees, and that additional fees or materials may be required as a result of considerations which may arise in the processing of this docket. I understand that the road, school, and park dedications may be required as a condition of approval.

I understand that I am consenting to allow the County Staff involved in this application or their designees to enter onto and inspect the subject property at any reasonable time, without obtaining any prior consent.

**All landowners are required to sign application. If additional space is needed, attach additional sheet signed and dated.**

| | | |
|---|---|---|
| Signature of Property Owner M Allison Hamm | Printed Name M. Allison Hamm | Date 10/5/2016 |
| Signature of Property Owner | Printed Name | Date |

The Land Use Director may waive the landowner signature requirement for good cause, under the applicable provisions of the Land Use Code.

**Limited Impact Special Use**

**North 83rd Street Location Addresses Attached List**

| Address | Parcel Number | Map ID |
|---|---|---|
| 15583 North 83rd Street | 120506000015 | 1 |
| 15555 North 83rd Street | 120506000029 | 2 |
| 15551 North 83rd Street | 120506000024 | 3 |
| 15789 North 83rd Street | 120506000009 | 4 |
| 15785 North 83rd Street | 120506000008 | 5 |
| 15781 North 83rd Street | 120506000007 | 6 |
| 15669 North 83rd Street | 120506000006 | 7 |
| 15623 North 83rd Street | 120506000013 | 8 |

Boulder County

**Boulder County Land Use Department Publications**

# Planning Review Fee Schedule

**Land Use Department**
Courthouse Annex Building
2045 13th Street
PO Box 471
Boulder, CO 80302

**Planning Division:**
Phone: 303-441-3930
Email: planner@bouldercounty.org
Website: www.bouldercounty.org/lu

**Office Hours:**
8 a.m.-4:30 p.m. Mon., Wed., Thurs., Fri.
10 a.m.-4:30 p.m. Tuesday

## Planning Review Fee Schedule

The fee structure is adopted by the Board of County Commissioners, and attempts to recover actual costs of providing the services.

The non-refundable application fee/deposit is usually exceeded. The Land Use Department will bill on a monthly basis once the fee is exceeded. Amendments require the same non-refundable fee as the original process.

Every planning process is required to have a pre-application conference prior to an application being submitted.

| Process | Non-Refundable Application Fee | Additional Billing* |
|---|---|---|
| Pre-application Conference in office | No Charge | N/A |
| Pre-application Conference on site | $208.00 | N/A |
| Appeal of Administrative Decision | $750.00 deposit and time billed for staff up to a total amount of $2,000. If the appellant prevails with the Board of Adjustment, the deposit and any additional payments will be refunded. | $103.83/hr up to $2,000.00 |
| Building Lot Determination: In a platted subdivision or previous Building Lot Determination completed in previous 5-year period. | $50.00 | flat fee |
| Building Lot Determination: All others. | $75.00 | flat fee |
| Comprehensive Plan change | $1,000.00 | $103.83/hr |
| Correction Plat | $125.00 | flat fee |
| Construction Development Permit (collected at Building Counter) | $857.00 (adopted June 2013) | N/A |
| DPR and Construction Development Permit inspections and ongoing monitoring | In house review of compliance reports/ documents $103.83/hr, with 2-hour minimum. Inspections 103.83/hr with 2-hour minimum. | $103.83/hr |
| Exemption Plat** | $1,575.00 $900 due at application, $675 due one week prior to hearing. | flat fee (if hours exceed 18 hours excess time to be billed at 103.83/hr) |
| Extension of Approval | $150.00 | N/A |
| Hazard Mitigation Review | $260.00 | N/A |
| Location and Extent | $500.00 | $103.83/hr |

*The hourly billing rate of $103.83/hr is for planner/engineer time. Administrative time will be billed for non-flat rate items at $30/hr. Public Notices required as part of a process will be billed for actual costs. Other agencies may require additional fees for review of land use applications, which fees must be paid separately.

**No charge for Exemption Plats and Subdivision Exemptions which remove a unit of density.

| Process | Non-Refundable Application Fee | Additional Billing* |
|---|---|---|
| **Limited Impact Special Review** (except as noted below) | $750.00 | $103.83/hr |
| **Limited Impact Special Review for:**<br>❑ Accessory Agricultural Sales 4-516(A)<br>❑ Accessory Farm Stand 4-516(H)<br>❑ Agricultural Accessory Dwellings (4-516(G)(1)(b)<br>❑ Demonstration Farm or Farm Camp 4-516(M)<br>❑ Farm Events 4-516(N)<br>❑ Farm Store 4-502(B)<br>❑ Seasonal Farm Stand 4-502(E)<br>❑ Watershed Restoration Project (grading 500 cubic yards or more) | $450.00 | $300.00 hearing fee, to be collected prior to Board of County Commissioners hearing. |
| Preliminary Plan and/or Final Plat | $850.00 | $103.83/hr |
| Renewable Energy System; Residential | $100.00 | N/A |
| Renewable Energy System; non-Residential | $500 .00 | N/A |
| Replat | $600.00 | $103.83/hr |
| Rezoning | $750.00 | $103.83/hr |
| **Site Plan Review**<br>❑ Proposal where the resulting Residential Floor Area exceeds the applicable Presumptive Size Maximum for the neighborhood.<br>❑ Commercial telecommunications facility.<br>❑ Establishment of use on a previously vacant or abandoned property.<br>❑ Changes in use in combination with structural or other significant physical improvements (i.e. parking increase). | $1,800.00 (flat fee) | N/A |
| **Site Plan Review**<br>❑ Proposals where the resulting Residential Floor Area is less than the applicable Presumptive Size Maximum for the neighborhood.<br>❑ Proposals for non-residential floor area not eligible for SPRW.<br>❑ Grading less than 500 cubic yards if not approved through waiver. | $1,250.00 (flat fee) | N/A |
| **Site Plan Review**<br>❑ Change in use other than to an Agricultural Use under 4-502 of the Land Use Code with no significant physical improvements. | $950.00 (flat fee) | N/A |
| **Site Plan Review**<br>❑ Change in use to an Agricultural Use under 4-502 of the Land Use Code with no significant physical improvements.<br>❑ Watershed Restoration project. | $475.00 (flat fee) | N/A |
| Site Plan Review Waiver | $600.00 (flat fee) | N/A |
| Site Specific Development Plan | $1,000.00 (flat fee) | N/A |
| Sketch Plan | $1,000.00 | $103.83/hr |
| Subdivision or PUD (combined process SP/PP/FP/SSDP) | $1,450.00 | $103.83/hr |
| Subdivision Exemption** | $500.00 | $103.83/hr |
| Special District | $500.00 | N/A |
| Special Use/SSDP | $1,450.00 | $103.83/hr |
| Special Use Monitoring | $125.00 | $103.83/hr |
| State Interest Reviews (1041) | $750.00 | $103.83/hr |
| Substantial Modification Determinations<br>*Complex determinations as identified by staff may require staff billing for additional time. Applicants will be notified and given a written estimate for amount anticipated and an additional deposit may be required. If determined to be a Major/Substantial modifications, these fees will be applied to the subsequent required process.* | $160.00 | $103.83/hr |

| Process | Non-Refundable Application Fee | Additional Billing* |
|---|---|---|
| Vacation (road / easement) | $750.00 | $103.83/hr |
| Variance | $500.00 | $103.83/hr |
| Zoning Verification letter (when a formal zoning verification letter is requested) *Zoning compliance verification letter contains information regarding current zoning on the parcel, previous reviews and permits on the parcels and any known unresolved zoning or building code complaints on record.* | $125.00 | $103.83/hr |

*The hourly billing rate of $103.83/hr is for planner/engineer time. Administrative time will be billed for non-flat rate items at $30/hr. Public Notices required as part of a process will be billed for actual costs. Other agencies may require additional fees for review of land use applications, which fees must be paid separately.

**No charge for Exemption Plats and Subdivision Exemptions which remove a unit of density.

## Additional Billing

- ❑ Additional or repeated inspections: $155.75
- ❑ Re-application fee for incomplete applications:
  - 1st re-application: $75.00 or 10% of application fee, whichever is greater.
  - 2nd or more re-application: $155.75 or 15% of application fee, whichever is greater.

## Other Development Review Fees and Waivers

- ❑ A Public Notice Sign Deposit (refundable if sign is returned) of $25.00 is required at time of application, as applicable.
- ❑ Fees for applications not specifically listed in this fee schedule will be determined by the Land Use Director based on the hourly rate and actual time spent.
- ❑ Fees for certain conditional use permit and site plan applications may be reduced, at the discretion of the Board of County Commissioners subsequent to the conclusion of the review process, when the County's cost of review is less than the applicable fee.

## Payment

Checks should be made out to **Boulder County Treasurer.**

## Credit/Debit Card Convenience Fee

A Credit/Debit Card Convenience Fee of 2.5% applies to all credit card and debit card transactions.

# Limited Impact Special Use Application
# Little Thompson River – Reach 3
# North 83rd Street
# Emergency Watershed Protection Project

**Prepared by:** Sarah Houghland, PE, CFM

as part of the Resilient Watershed Partners (RWP)Team

**Prepared for:** Boulder County Land Use Department

& Little Thompson Watershed Coalition (LTWC)

October 14, 2016

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# Project Narrative

## Introduction

As part of the Emergency Watershed Program (EWP), the Resilient Watershed Partners (RWP) is working with the Little Thompson Watershed Coalition (LTWC) to address issues caused by the September 2013 floods. This report has been prepared to support the Limited Impact Special Use (LISU) application required by Boulder County for Watershed Restoration Projects requiring grading of 500 cubic yards or more. The Little Thompson River – Reach 3 Emergency Watershed Project includes design for flood protection and mitigation upstream of North 83rd Street. This reach of the Little Thompson River is generally on the Boulder County - Larimer County border and is located west of North 83rd Street and south of County Line Road. **Figure 1** is a vicinity map that shows the location of the project site.

The largest quantity items from the Damage Survey Report (DSR) for the North 83rd Street Bridge project include are sediment removal and bioengineering along with top soil and revegetation efforts. Alternatives explored developing the draft drawings for these projects are consistent with the DSR and are elaborated below. Completion of the proposed work will create more resiliency within the watershed by re-establishing vegetation, leaving pre and post flood pathways, and re-enforcing banks near structures that can withstand higher flows.

The LISU Pre-Application meeting was held on July 1, 2016. Representatives from Boulder County Land Use Department, LTWC, and RWP were in attendance. At this phase of the project, field visits with property owners and extensive coordination with the project sponsors and different Boulder County departments has taken place. The EWP project team has reviewed drafts of the plan sets and project reports. Construction is expected to begin in January 2017, and it is estimated that the duration of work for construction will be 2-3 months followed by revegetation establishment beginning Spring 2017.

The required LISU Application components are either contained within the main body of this report or included as attachments. The attachments are:

- Attachment A – Limited Impact Special Use Pre-Application Map
- Attachment B – Draft Site Plan, Plan and Profile Sheets
- Attachment C – Grading Fact Sheet

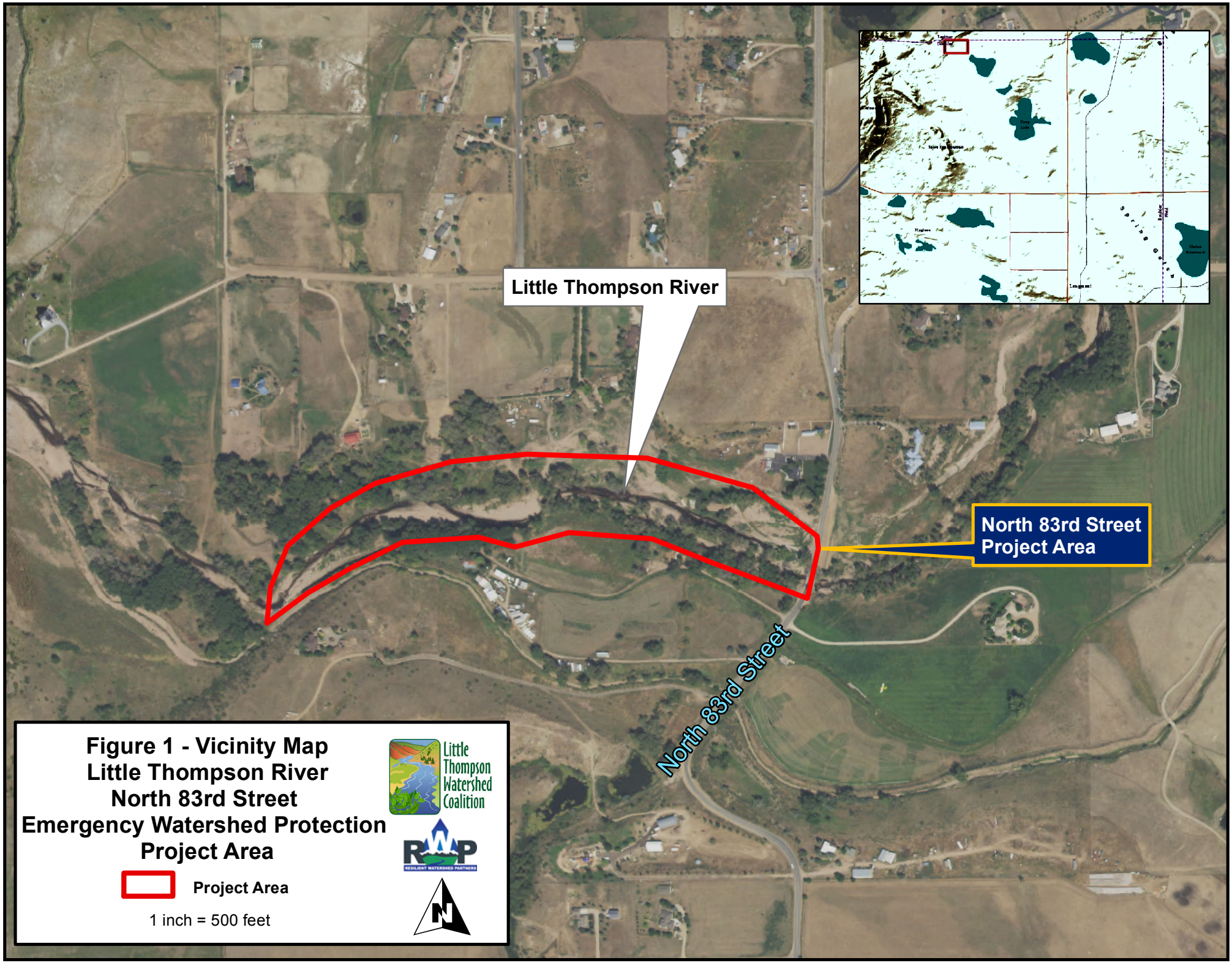



**Figure 1 - Vicinity Map**
**Little Thompson River**
**North 83rd Street**
**Emergency Watershed Protection**
**Project Area**

## Cause of Problem

Most flooding problems for this reach is caused by a very wide floodplain compared to the location of structures and properties near the stream. Many residences are located close to the stream's base channel and are well within a very wide floodplain. The stream loses gradient as it travels east, dropping sediment and wasting of materials as the high kinetic energy developed in the mountain canyons is transferred to lower, more broad potential energy in the plains. The changing stream gradient cannot carry the large quantity of materials attained upstream and deposits the bed load as floodwaters continue downstream. This causes the stream to avulse and follow historic flow paths, sometimes meandering outside of the mapped floodplain. This portion of the Little Thompson River consists of a moderate to low stream gradients with a partial to unconfined floodplain that is conducive for many split flow pathways caused by avulsion and also influenced by anthropologic changes, such as roads and bridges.

In general, damage to properties in these locations are from:

- Split flows defining a new path that damaged houses outside of the mapped floodplain.
- Erosion and deposition at properties within the mapped floodplain.
- Undersized bridges and culverts effecting flow paths and/or clogging with debris causing flooding to nearby properties. The previous North 83rd Street bridge was undersized and caused significant backwater conditions for lower frequency flows and overtopping and split flows for higher flood frequencies.

## Alternatives Considered

While the EWP program's goals are to protect life and property as defined by the DSR prepared by the NRCS, alternatives considered within the project areas include also recommendations stated in the *Little Thompson Watershed Restoration Master Plan*, December 2014, prepared by Tetra Tech. The EWP program is not specifically limited to improvements noted in the master plan. The design is informed by the master plans, but not strictly limited to what's shown in them. These alternatives included examining the following issues raised in the Master Plan. The stations referenced below correspond to project location maps that were included in the Master Plan.

- Lower and grade floodplain surfaces upstream of North 83rd Street to improve conveyance capacity and drainage.
- Reclaim eroded overbank surfaces, especially on the south side of the river near Station 1272+00.
- Reconstruct original channel alignment upstream of the North 83rd Street bridge (Station 1260+00 to Station 1285+00) and add fill to the flood channel to convert to a stable floodplain surface and direct overtopping flows to the bridge.
- Seed and/or plant riparian vegetation along the bare reworked channel banks is recommended to accelerate revegetation and stability of the banks.
- All recommendations for areas near 83rd Street may need to be refined in coordination with future Boulder County Bridge designs.
- Bank stabilization near Station 1279+00.
- A detailed hydraulic analysis of channel and floodplain capacity is recommended for this area.

The design and analysis performed as part of this project mostly follow the recommendations listed in the Master Plan. Exceptions include the following:

- Reclaim eroded overbank surfaces, especially on the south side of the river near Station 1272+00. The property owner in this area does not want the eroded areas addressed.

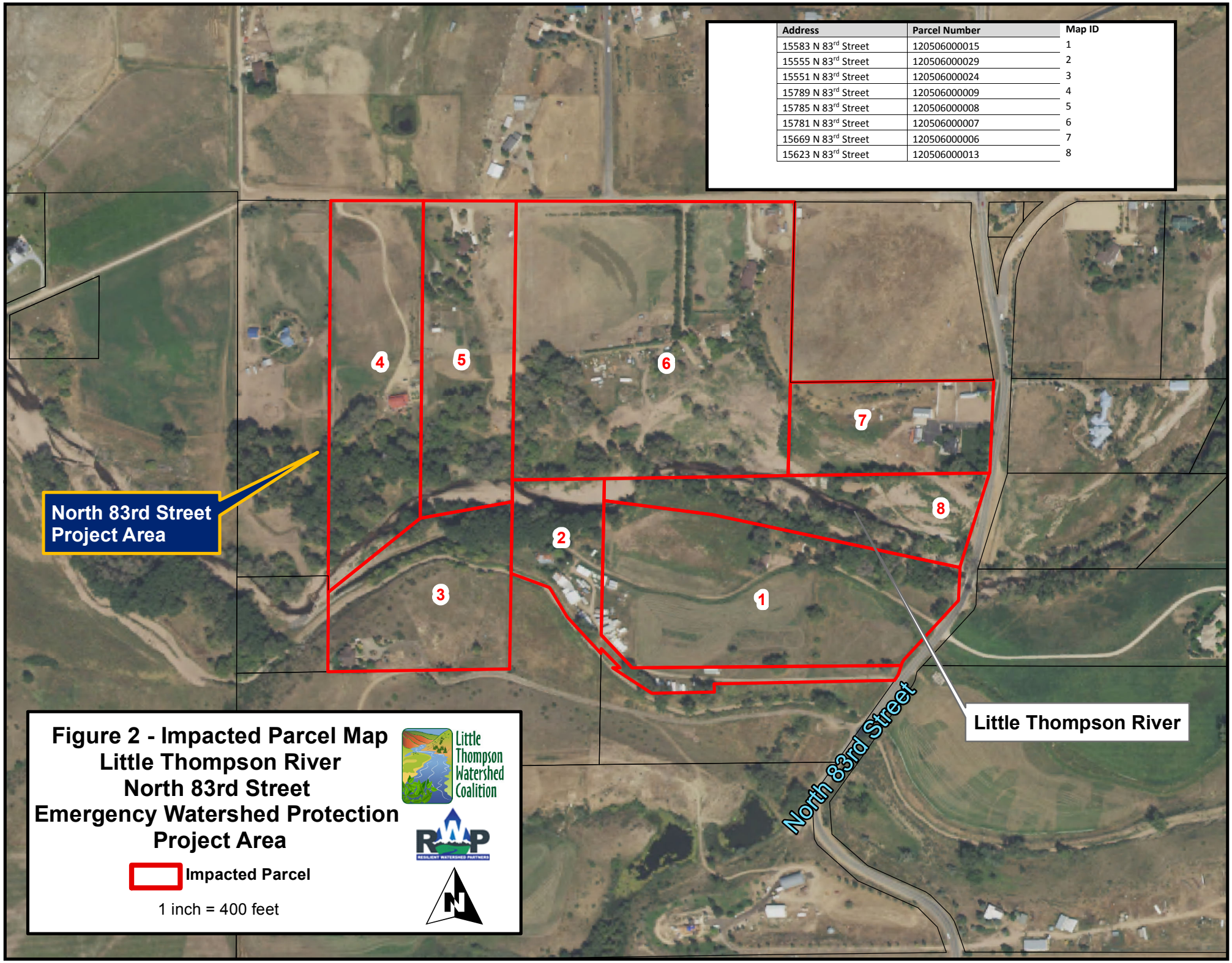
## Impacted Parcel Information

The impacted parcels are listed in **Table 1** and are shown on **Figure 2**. The upstream limit of the project is approximately 50 feet downstream of the 15789 North 83rd Street and 15551 North 83rd Street property boundaries. Per directive from the Boulder County Land Use Department, Ownership and Encumbrance (O&E) reports are not required for the EWP project. Due to the serious flood damage to the structure at 15623 North 83rd Street, Boulder County bought the property as part of FEMA's buyout program.

| Address | Parcel Number | Map ID |
|---|---|---|
| 15583 North 83rd Street | 120506000015 | 1 |
| 15555 North 83rd Street | 120506000029 | 2 |
| 15551 North 83rd Street | 120506000024 | 3 |
| 15789 North 83rd Street | 120506000009 | 4 |
| 15785 North 83rd Street | 120506000008 | 5 |
| 15781 North 83rd Street | 120506000007 | 6 |
| 15669 North 83rd Street | 120506000006 | 7 |
| 15623 North 83rd Street | 120506000013 | 8 |

*Table 1 – Parcel Information*

**Attachment A** includes the Vicinity Map that the Boulder County Land Use Department provided to include in the LISU permit.




| Address | Parcel Number | Map ID |
|---|---|---|
| 15583 N 83rd Street | 120506000015 | 1 |
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| 15623 N 83rd Street | 120506000013 | 8 |

**Figure 2 - Impacted Parcel Map**
**Little Thompson River**
**North 83rd Street**
**Emergency Watershed Protection**
**Project Area**

## Project Description

### North 83rd Street Reach

This purpose of this project is to analyze and resolve outstanding flooding issues upstream of the North 83rd Street Bridge. During the 2013 Flood Events, the bridge at North 83rd Street over the Little Thompson River failed and the approach road to the north was severely damaged. Although the southern approach road was not seriously damaged, the soil to the east of the road eroded away. Boulder County responded to the flooding condition by installing eight 48-inch CMPs, grading around the pipes, and patching the damaged roadways in order to open the road to traffic. Construction on the North 83rd Street bridge is on-going and will be completed in the Winter of 2016.

Basic information and objectives for the North 83rd Street project are:

- The entire project reach is approximately 2,100 feet long and begins just approximately 200 feet upstream of the North 83rd Street Bridge and extends upstream to a point approximately 80 feet downstream of the Blower Irrigation Ditch Company dam. The downstream project limit is based on the design plans for the North 83rd Street Bridge. Approximately 200 feet upstream of the bridge, Boulder County plans to install a drop pool with rock revetment at the upstream end. The EWP project will begin upstream of this drop pool structure.
- Provide bank stabilization and re-enforcement at critical locations.
- Re-establish the channel at certain locations.
- Remove flood debris.
- Re-establish vegetation.

Please refer to **Attachment B** for the draft plan and profile sheets to see to project extents and to refer back to particular project details.

The largest portion of the stream restoration work is the removal of large sediment deposits along the entire reach. Significant channel excavation is required to improve the 100-year flow conveyance. Additionally, grading and channel excavation is proposed to remove flood debris and re-establish the channel and floodplain storage adjacent to the stream.

Analysis and design approaches vary depending on the expected flow regime and channel gradient within the Little Thompson River. The North 83rd Street project has a steeper gradient that develops

different channel planforms over time. High gradient streams generally flow at critical to supercritical depth, which are very unstable flow regimes in a natural environment. The natural process in this situation develops shoot and pool channel forms. As such, the design in these locations follows the physical channel formation processes.

The following series of photos captures the existing conditions along the entire reach and documents the proposed stream restoration activity for that specific area.

*Looking at upstream at the small dam on the south bank. The dam is outside of the project area, and there is no proposed stream restoration work in this location.*

*Looking downstream at approximate start of the stream restoration work – 23+00. Debris and invasive plant species removal is proposed on the south bank. Channel excavation will begin at station 23+00. Debris removal and bio stabilization projection measures are proposed for the north bank. Native plant species will be re-established.*

*Debris on the reach's south bank at approximate Station 22+50.*

*Looking downstream at approximate Station 21+50. Sediment and debris removal along with channel excavation are proposed. The low flow channel and bench style bank protection measures will be established.*

*Looking upstream from north bank at approximate Station 22+00. The channel will be excavated and debris will be removed. Bench style bank protection measures will be used.*

*Looking upstream from the north bank at approximate Station 18+00. The channel will be excavated and debris will be removed. Bench style bank protection measures will be used.*

*Looking at the south bank at approximate Station 18+00. Sediment and debris removal are proposed along with bench style bank protection measures.*

*Looking downstream from the north bank at approximate Station 15+00. The continuation of excavation, channel grading, and bench style bank protection measures are proposed in this area.*

*Looking downstream at approximate Station 12+00. Excavation, channel grading, and bench style bank protection measures are proposed as a continuation of upstream stream restoration activities.*

*Looking upstream at approximate Station 12+00. Excavation, channel grading, and bench style bank protection measures are proposed as a continuation of upstream stream restoration activities.*

*Looking upstream from the south bank at approximate Station 10+00. The continuation of excavation, channel grading, and bench style bank protection measures are proposed in this area.*

*Looking north at approximate Station 10+00. The property in the photo is the Spence property. Re-grading is proposed to reconnect the floodplain in this location.*

*Looking downstream at approximate Station 7+00. Excavation, channel grading, and bench style bank protection measures are proposed as a continuation of upstream stream restoration activities.*

*Looking upstream at approximate Station 8+00. Excavation, channel grading, and bench style bank protection measures are proposed as a continuation of upstream stream restoration activities.*

*Looking across the river from the north bank at approximate Station 7+00. The house at the Fuller property is pictured.*

*Looking upstream at approximate Station 5+50. Excavation, channel grading, and bench style bank protection measures are proposed as a continuation of upstream stream restoration activities.*

*Looking downstream from the north bank at approximate Station 3+50. Excavation, channel grading, and bench style bank protection measures are proposed as a continuation of upstream stream restoration activities.*

*Looking upstream from the north bank at approximate Station 3+00. Excavation, channel grading, and bench style bank protection measures are proposed as a continuation of upstream stream restoration activities.*

*Looking downstream from North 83rd Street bridge during construction. This photo was taken on June 8, 2016.*

## Revegetation Plan

The proposed planting plan is part of the EWP project plan. The planting schedule varies by location and the proximity to base or high flows. The plan is to revegetate all disturbed areas in the project. In areas where extensive channel grading and bank stabilization are proposed, invasive species will be removed. The following tables represent planting schedules for low flow locations, base flow or channel flow, locations that are only wet during flood flows, or for upland areas. LTWC will conduct maintenance and monitoring of vegetation for three years.

*Table 2 – Proposed Plantings for Locations Close to the Main Channel that will be Wet Most of the Year*

| Scientific Name | Common Name | Percent of mix | Material Type |
|---|---|---|---|
| **graminoids** | | | |
| *Carex nebrascensis* | Nebraska sedge | 20 | Container |
| *Carex pellita* | wooly sedge | 20 | Container |
| *Eleocharis palustris* | creeping spikerush | 10 | Container |
| *Juncus arcticus* ssp. *littoralis* | mountain rush | 15 | Container |
| *Juncus ensifolius* | three-stamened rush | 7.5 | Container |
| *Juncus torreyi* | Torrey's rush | 10 | Container |
| *Scirpus microcarpus* | panicled bulrush | 7.5 | Container |
| *Spartina pectinata* | prairie cordgrass | 10 | Container |

| Scientific Name | Common Name | Percent of mix | Seed number using 150 seeds/sq ft |
|---|---|---|---|
| **graminoids** | | | |
| *Beckmannia syzigachne* | American sloughgrass | 15 | 22.5 |
| *Calamagrostis canadensis* | bluejoint reedgrass | 10 | 15 |
| *Glyceria striata* | fowl mannagrass | 20 | 30 |
| *Juncus arcticus* ssp. *littoralis* | mountain rush | 15 | 22.5 |
| *Juncus torreyi* | Torrey rush | 10 | 15 |
| *Poa palustris* | fowl bluegrass | 30 | 45 |

*Table 3 – Proposed Planting Schedule for locations near the Base Full or Channel Full Flow Areas above the Low Flow*

| **Scientific Name** | **Common Name** | **Percent of mix** | **Seed number using 150 seeds/sq ft** |
|---|---|---|---|
| **forb species** | | | |
| *Asclepias incarnata* | swamp milkweed | 2.5 | 3.8 |
| *Geum macrophyllum* | largeleaf avens | 2.5 | 3.8 |
| *Mimulus guttatus* | common monkeyflower | 2.5 | 3.8 |
| *Verbena hastata* | blue verbene | 2.5 | 3.8 |
| | | | |
| **graminoids** | | | |
| *Beckmannia syzigachne* | American sloughgrass | 10 | 15 |
| *Calamagrostis canadensis* | bluejoint reedgrass | 5 | 7.5 |
| *Glyceria striata* | fowl mannagrass | 10 | 15 |
| *Juncus arcticus* ssp. *littoralis* | mountain rush | 15 | 22.5 |
| *Juncus torreyi* | Torrey rush | 10 | 15 |
| *Nasella viridula* | green needlegrass | 5 | 7.5 |
| *Poa palustris* | fowl bluegrass | 20 | 30 |
| *Sorghastrum nutans* | yellow Indiangrass | 5 | 7.5 |
| *Spartina pectinata* | prairie cordgrass | 10 | 15 |

| **Scientific Name** | **Common Name** | **Percent of mix** | **Material Type** |
|---|---|---|---|
| **woody species** | | | |
| *Salix exigua* | Narrowleaf willow | 20 | Cutting |
| *Salix irrorata* | Bluestem willow | 5 | Cutting |
| *Salix lucida ssp. caudata* | Whiplash willow | 10 | Cutting |
| | | | |
| **graminoids** | | | |
| *Carex nebrascensis* | Nebraska sedge | 15 | Container |
| *Carex pellita* | Woolly sedge | 15 | Container |
| *Eleocharis palustris* | Creeping spikerush | 2.5 | Container |
| *Juncus arcticus ss. Littoralis* | Mountain rush | 15 | Container |
| *Juncus ensifolius* | Three-stamened rush | 2.5 | Container |
| *Juncus torreyi* | Torrey's rush | 2.5 | Container |
| *Scirpus microcarpus* | Panicled bulrush | 2.5 | Container |
| *Spartina pectinata* | Prairie cordgrass | 10 | Container |

*Table 4 – Proposed Planting Schedule for Locations away from the main channel that will experience inundation during infrequent floods.*

| **Scientific Name** | **Common Name** | **Percent of mix** | **Material Type** |
|---|---|---|---|
| **woody species** | | | |
| *Betula occidentalis* | Western river birch | 10 | container |
| *Cornus sericea* | Redosier dogwood | 5 | container |
| *Populus deltoids ssp. Monilifera* | Plains cottonwood | 25 | cutting |
| *Prunus virginiana ssp. Melanocarpa* | Chokecherry | 5 | container |
| *Ribes aureum* | Golden current | 5 | container |
| *Salix amygdaloides* | Peachleaf willow | 5 | container |
| *Salix exigua* | Narrowleaf willow | 20 | cutting |
| *Salix irrorata* | Bluestem willow | 5 | container |
| *Salix lucida ssp. caudata* | Whiplash willow | 5 | container |
| | | | |
| **Graminoids and others** | | | |
| *Carex nebrascensis* | Nebraska sedge | 5 | Container |
| *Eleocharis palustris* | Creeping spikerush | 5 | Container |
| *Equisetum arvense* | Scouring rush | 5 | Rhizome |

| **Scientific Name** | **Common Name** | **Percent of mix** | **Seed number using 150 seeds/sq ft** |
|---|---|---|---|
| **Herbaceous dicot** | | | |
| *Campanula rotundifolia* | Harebell | 3 | 4.5 |
| *Cleome serrulata* | Rocky Mountain beeplant | 3 | 4.5 |
| *Helianthus nuttallii* | Nuttall's sunflower | 3 | 4.5 |
| Monarda fistulosa | Wild bergamot | 3 | 4.5 |
| Solidago canadensis | Canada goldenrod | 3 | 4.5 |
| | | | |
| **graminoids** | | | |
| *Elymus lanceolatus ssp. Lanceolatus* | Thickspike wheatgrass | 15 | 22.5 |
| *Glyceria striata* | Fowl mannagrass | 5 | 7.5 |
| *Jancus arcticus ssp. Littoralis* | Mountain rush | 5 | 7.5 |
| *Juncus torreyi* | Torrey rush | 5 | 7.5 |
| *Nasella viridula* | Green needlegrass | 10 | 15 |
| *Pascopyron* | Western wheatgrass | 15 | 22.5 |
| *Poa palustris* | Fowl bluegrass | 15 | 22.5 |
| *Poa secunda* | Sandberg bluegrass | 15 | 22.5 |

*Table 5 – Proposed Planting Schedule for Locations away from the main channel that are in upland areas*

| **Scientific Name** | **Common Name** | **Percent of mix** | **Material Type** |
|---|---|---|---|
| **woody species** | | | |
| *Cercocarpus montanus* | Mountain mohagany | 15 | container |
| *Holidiscus domosus* | Mountain spirea | 5 | container |
| *Juniperus scopulorum* | Rocky Mountain juniper | 5 | container |
| *Mahonia repens* | Creeping mahonia | 15 | container |
| *Pinus ponderosa* | Ponderosa pine | 5 | container |
| *Populus deltoids ssp. Monilifera* | Plains cottonwood | 20 | cutting |
| *Prunus viriniana ssp. Molanocarpa* | Chokecherry | 15 | container |
| *Ribes aureum* | Golden current | 5 | container |
| *Sumphoricarpos rotundifolius* | Roundleaf snowberry | 15 | container |

| **Scientific Name** | **Common Name** | **Percent of mix** | **Seed number using 150 seeds/sq ft** |
|---|---|---|---|
| **Herbaceous dicot** | | | |
| *Campanula rotundifolia* | Harebell | 2.5 | 3 |
| *Cleome serrulata* | Rocky Mountain beeplant | 2.5 | 3 |
| *Helianthus nuttallii* | Nuttall's sunflower | 2.5 | 3 |
| *Monarda fistulosa* | Wild bergamot | 2.5 | 3 |
| *Solidago canadensis* | Canada goldenrod | 2.5 | 3 |
| *Vicia americana* | American vetch | 2.5 | 3 |
| | | | |
| **graminoids** | | | |
| *Achnatherum hymenoides* | Indian ricegrass | 5 | 6 |
| *Bouteloua gracilis* | Blue grama | 5 | 6 |
| *Elymus lanceolatus ssp. Lanceolatus* | Thickspike wheatgrass | 15 | 18 |
| *Koeleria macrantha* | Junegrass | 5 | 6 |
| *Muhlenbergia montana* | Mountain muhly | 5 | 6 |
| *Nasella viridula* | Green needlegrass | 7.5 | 9 |
| *Pascopyron smithii* | Western wheatgrass | 15 | 18 |
| *Poa secunda* | Sandberg bluegrass | 10 | 12 |
| *Psuedoroegenria spicata* | Bluebunch wheatgrass | 5 | 6 |
| *Schizachyrium scoparium* | Little bluestem | 10 | 12 |

## Erosion Control Plan

At this phase of the project, an erosion control plan has not been established. The selected contractor will create a plan and that information will be provided to Boulder County at a later date. Due to the amount of grading associated with this project, the erosion control plan will be an important component of the contractor's project plan.

## Grading Discussion

The Grading Fact Sheet for this project is included in **Attachment C** in this report. It is the project team's intention to use cut materials for fill where feasible and to minimize material transport if possible. We anticipate materials will need to be exported from and imported to the project site. For the North 83rd Street project, a majority of the stream restoration work involves removing sediment and debris from the Little Thompson River channel and banks.

## Traffic Control, Haul Routes, Access Points & Staging Areas

Traffic control, haul routes, project access and staging areas are still under consideration. More details regarding all of these issues will be provided once a contractor is selected. However, the EWP project team has identified the Boulder County owned property at 15623 North 83rd Street as a potential access point and staging area. The locations of the access points and staging areas that are under consideration have been include on the plan sheets in **Attachment B**.

## Permitting in Progress

The EWP project team has initiated the Clean Water Act Section 404 Permitting process with the U.S. Army Corps of Engineers.

The North 83rd Street project is included in the December 4, 2015, the Natural Resources Conservation Service (NRCS) Emergency Watershed Protection Program Final Biological Assessment for the Northern Colorado Counties. Concurrence from the U.S. Fish and Wildlife Service (USFWS) was received on September 22, 2016, for the North 83rd Street project.

In addition, the NRCS has completed a cultural resource inventory and no historic properties will be impacted by these projects.

## Attachment A – Limited Impact Special Use Pre-Application Vicinity Map

# Boulder County Land Use Department

2045 13th Street, Boulder, CO 80302 303-441-3930 www.bouldercounty.org\lu

## Land Use PreApplication Map: Vicinity

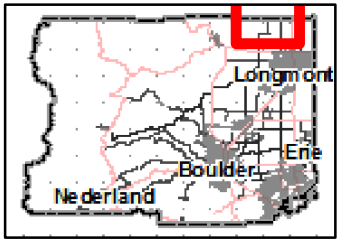
Parcel No: 120506000006, Parcel No: 120506000007
Parcel No: 120506000008, Parcel No: 120506000009
Parcel No: 120506000013. Parcel No: 120506000015
Parcel No: 120506000024. Parcel No: 120506000029

## Legend

- Subject Property
- County Boundary
- Parcels
- Intermittent Stream
- Perennial Stream
- Subdivisions

NORTH 0 1 Miles

**Area of Detail** Date: 10/11/2016

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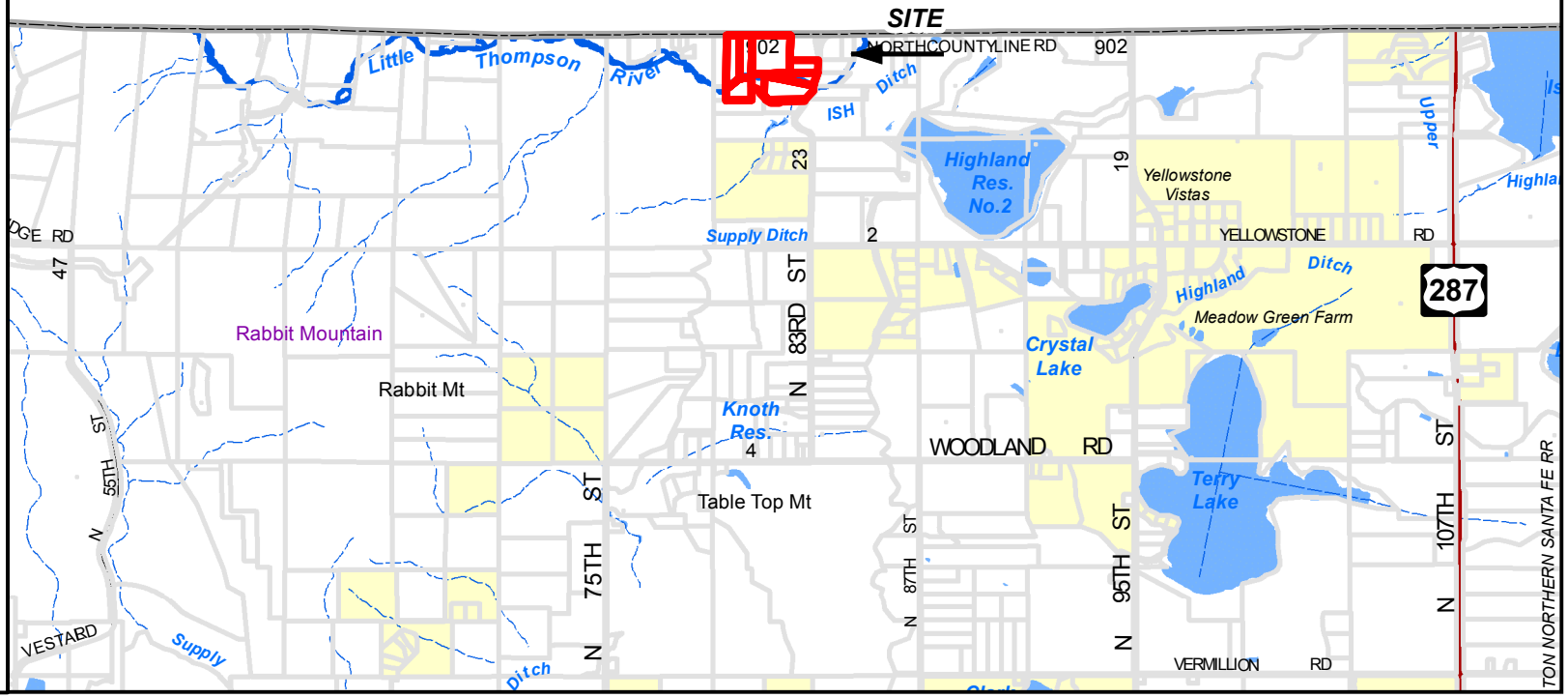


## Attachment B – Draft Site, Plan and Profile Sheets

# EMERGENCY WATERSHED PROTECTION (EWP) PROGRAM

Draft Drawing Set for Internal Review

(NOT FOR CONSTRUCTION)

# LITTLE THOMPSON RIVER ABOVE NORTH 83RD STREET

# CHANNEL AND BANK PROTECTION

## BOULDER COUNTY, COLORADO


PREPARED BY:

RESILIENT WATERSHED PARTNERS

10106 WEST SAN JUAN WAY, SUITE 215

LITTLETON, COLORADO 80127


## SHEET INDEX

| Sheet List Table | |
|---|---|
| Sheet Number | Sheet Title |
| 1 | COVER SHEET |
| 2 | CHANNEL PLAN AND PROFILE |
| 3 | SECTION VIEW |
| 4 | DETAILS AND OTHER SHEETS, PENDING |

VICINITY MAP

*NOT TO SCALE*

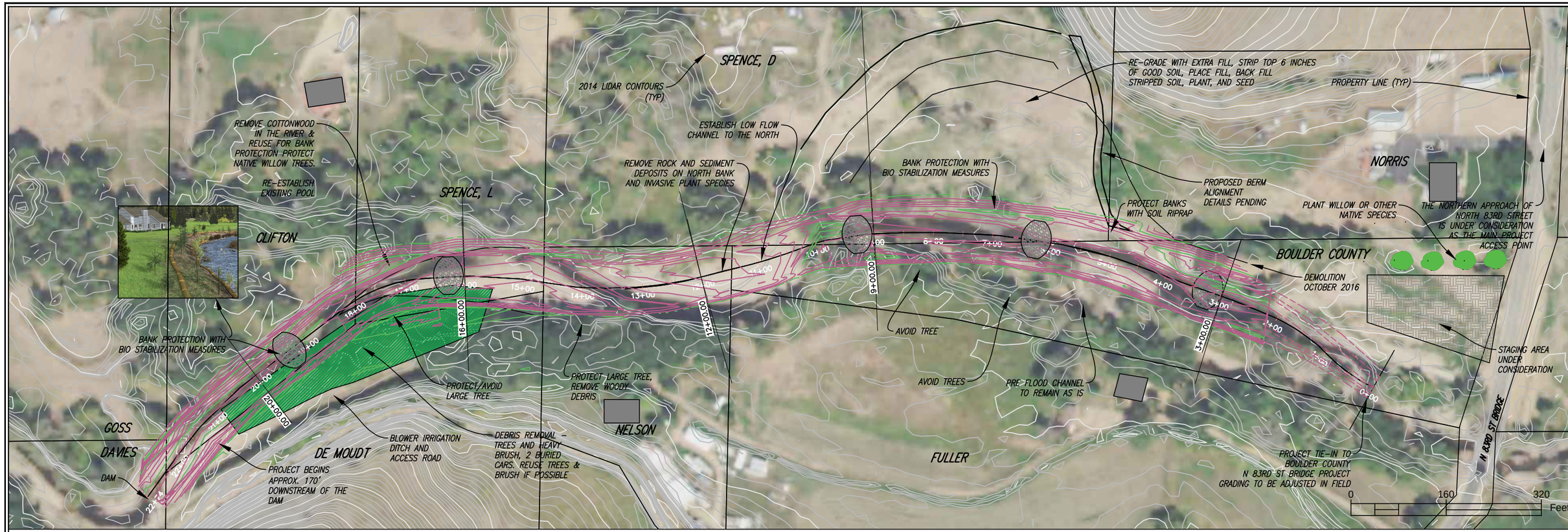
PREPARED FOR:

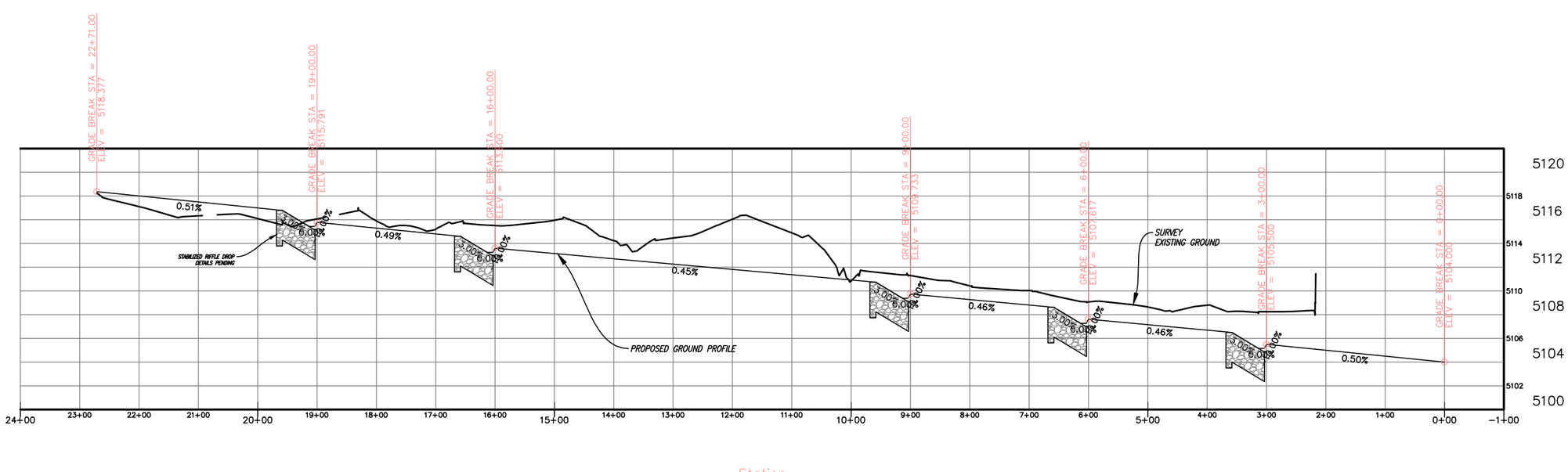
LITTLE THOMPSON WATERSHED COALITION (LTWC)

P.O. BOX 1413

435 HIGH STREET, #201

LYONS, COLORADO 80540




PREPARED FOR:

LITTLE THOMPSON WATERSHED COALITION
P.O. BOX 1413
435 HIGH STREET, #201
LYONS, COLORADO 80540

Little Thompson Watershed Coalition

PREPARED BY:

RESILIENT WATERSHED PARTNERS (RWP)
10106 W SAN JUAN WAY
LITTLETON CO 80127
PH : 303-872-9112
FX : 303-872-9104

RWP RESILIENT WATERSHED PARTNERS

| | |
|---|---|
| DESIGNED: | GEB |
| DRAWN: | GEB |
| CHECKED: | JWS |
| DATE: | 10/05/2016 |

| REVISION | DESCRIPTION | BY | DATE |
|---|---|---|---|
| R– | xx | ... | ... |
| R– | xx | ... | ... |
| R– | xx | ... | ... |
| R– | xx | ... | ... |
| R– | xx | ... | ... |

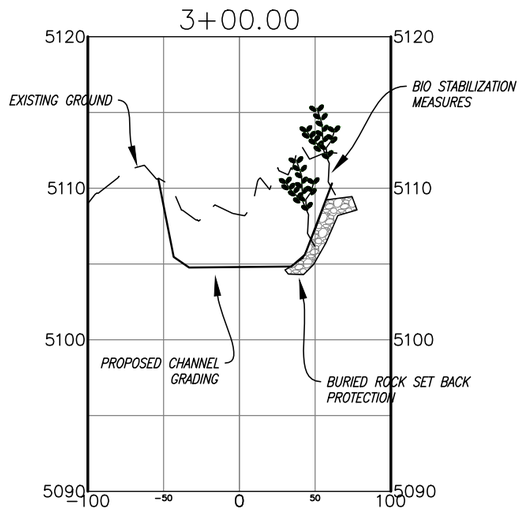
CONSULTANT ENGINEER CERTIFICATION

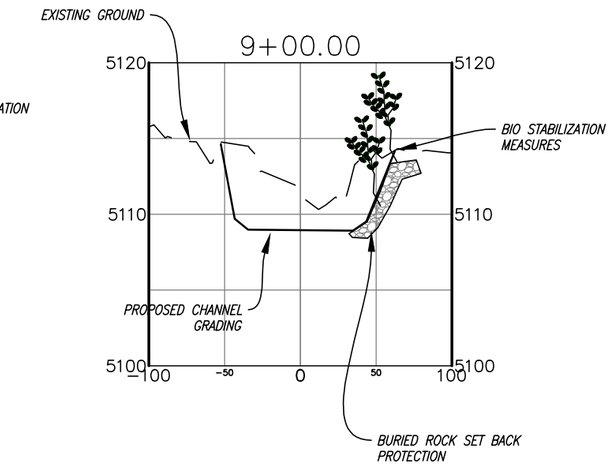
THESE PLANS ARE DRAFT AND NOT FOR CONSTRUCTION. THIS SUBMITTAL IS INTENDED FOR REVIEW ONLY.

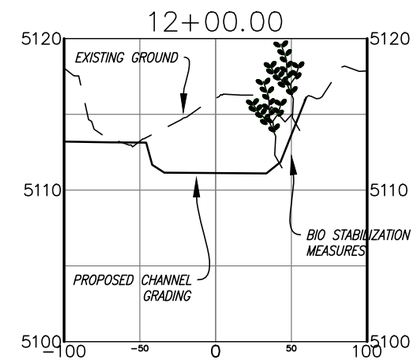
# LITTLE THOMPSON ABOVE N 83RD ST CHANNEL PLAN AND PROFILE

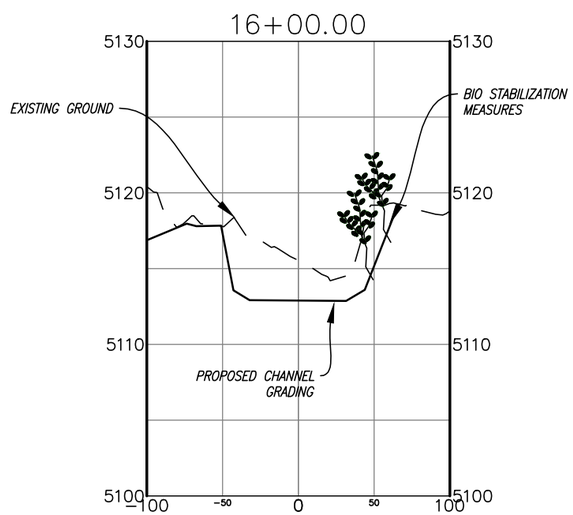
SHEET/REFERENCE NO.

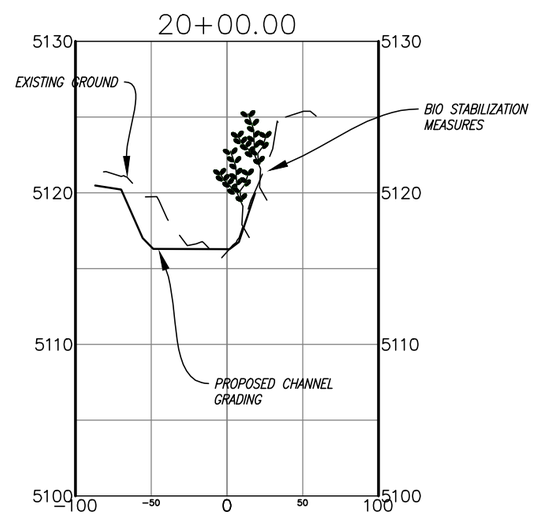
2 OF 4




PREPARED FOR:
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WATERSHED COALITION
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10106 W SAN JUAN WAY
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FX : 303-872-9104

DESIGNED: GEB
DRAWN: GEB
CHECKED: JWS
DATE: 8/23/2016

| REVISION | DESCRIPTION | BY | DATE |
|---|---|---|---|
| R- | xx | ... | ... |
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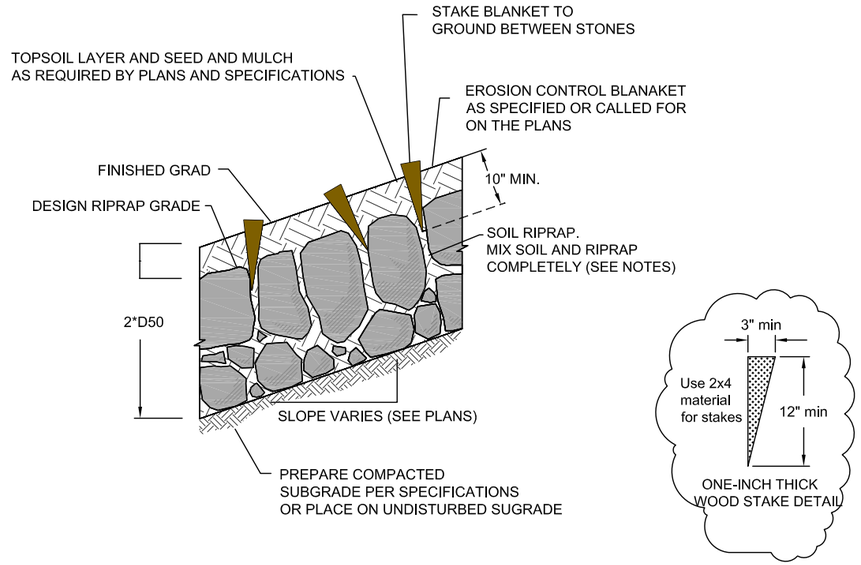
| R- | xx | ... | ... |
| R- | xx | ... | ... |

CONSULTANT ENGINEER CERTIFICATION

THESE PLANS ARE DRAFT AND NOT FOR CONSTRUCTION. THIS SUBMITTAL IS INTENDED FOR REVIEW ONLY.

# LITTLE THOMPSON ABOVE N 83RD ST
# SECTION VIEW

SHEET/REFERENCE NO.
3
OF
4



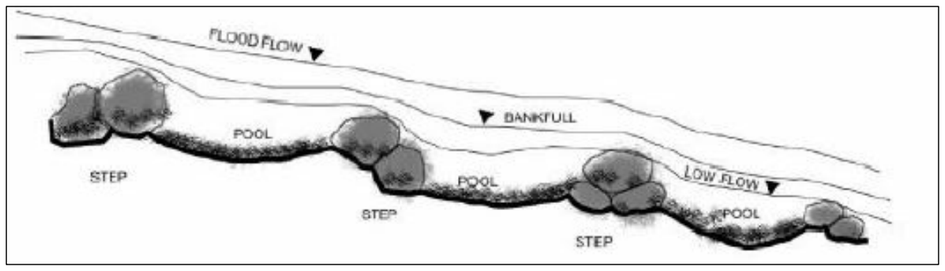

TYPICAL SECTION -
SOIL RIPRAP WITH EROSION CONTROL FABRIC

NOTES:

1. SOIL RIPRAP DETAILS ARE APPLICABLE TO SLOPED AREAS. REFER TO THE SITE PLAN ACTUAL LOCATION AND LIMITS.
2. MIX UNIFORM ALLY 65% RIPRAP BY VOLUME WITH 35% OF APPROVED SOIL BY VOLUME PRIOR TO PLACEMENT.
3. PLACE STONE-SOIL MIX TO RESULT IN SECURELY INTERLOCKED ROCK AT THE DESIGN THICKNESS AND GRADE. COMPACT AND LEVEL TO ELIMINATE ALL VOIDS AND ROCKS PROJECTING ABOVE DESIGN RIPRAP TOP GRADE.
4. CRIMP OR TACKIFY MULCH OR USE APPROVED HYDROMULCH AS CALLED FOR IN THE PLANS AND SPECIFICATIONS.

1 BURIED, MIXED, AND PLANTED BANK PROTECTION DETAIL

NTS




2 STEP POOL DESIGN FOR LOW FLOW CHANNEL

NTS

PREPARED FOR:
LITTLE THOMPSON
WATERSHED COALITION
P.O. BOX 1413
435 HIGH STREET, #201
LYONS, COLORADO 80540

PREPARED BY:
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PH : 303-872-9112
FX : 303-872-9104

DESIGNED: GEB
DRAWN: GEB
CHECKED: JWS
DATE: 8/23/2016

| REVISION | DESCRIPTION | BY | DATE |
|---|---|---|---|
| R- | | | |
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| R- | | | |

CONSULTANT ENGINEER CERTIFICATION

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**LITTLE THOMPSON ABOVE N 83RD ST**
**TYPICAL DETAILS (PENDING)**

SHEET/REFERENCE NO.
4
OF
4

## Attachment C – Grading Fact Sheet

## Grading Calculation

Cut and fill calculations are necessary to evaluate the disturbance of a project and to verify whether or not a Limited Impact Special Use Review (LISR) is required. A Limited Impact Special Use Review is required when grading for a project involves more than 500 cubic yards (minus normal cut/fill and backfill contained within the foundation footprint).

If grading totals are close to the 500 yard trigger, additional information may be required, such as a grading plan stamped by a Colorado Registered Professional Engineer.

### Earth Work and Grading

This worksheet is to help you accurately determine the amount of grading for the property in accordance with the Boulder County Land Use Code. Please fill in all applicable boxes.

**Note:** Applicant(s) must fill in the shaded boxes even though foundation work does not contribute toward the 500 cubic yard trigger requiring Limited Impact Special Use Review. Also, all areas of earthwork must be represented on the site plan.

### Earth Work and Grading Worksheet:

| | Cut | Fill | Subtotal |
|---|---|---|---|
| Driveway and Parking Areas | 0 | 0 | 0 |
| Berm(s) | 0 | 600 | 600 |
| Other Grading | 28,500 | 2,500 | 31,000 |
| Subtotal | 28,500 | 3,100 | 31,600 Box 1 |

* If the total in Box 1 is greater than 500 cubic yards, then a Limited Impact Special Review is required.

| | Cut | Fill | Total |
|---|---|---|---|
| Foundation | 0 | 0 | 0 |
| Material cut from foundation excavation that will be removed from the property | | | 0 |

### Excess Material will be Transported to the Following Location:

| Excess Materials Transport Location: |
|---|
| To Be Determined |
| |
| |

### Is Your Property Gated and Locked?

**Note:** If county personnel cannot access the property, it could cause delays in reviewing your application.

## Certification

I certify that the information submitted is complete and correct. I agree to clearly identify the property (if not already addressed) and stake the location of the improvements on the site within four days of submitting this application. I understand that the intent of the Site Plan Review process is to address the impacts of location and type of structures, and that modifications may be required. Site work will not be done prior to issuance of a Grading or Building Permit.

X Signature Sarah Haughland Date 10/13/2016